

Thor

INDEPENDENT
PNEUMATIC
TOOL COMPANY

CHICAGO · NEW YORK

Address all Correspondence for
INDEPENDENT PNEUMATIC TOOL CO.,
To FARMERS BANK BUILDING,
PITTSBURGH, PA.

INDEPENDENT PNEUMATIC TOOL COMPANY

Catalog No. 9

Manufacturers of *Thor*

Pneumatic Tools

Piston Air Drills, Reversible and Non-Reversible, Pneumatic Reaming, Tapping and Flue Rolling Machines, Pneumatic Wood-Boring Machines, Pneumatic Grinders, Close-Quarter Drills, Pneumatic Riveting, Chipping, Calking, and Beading Hammers, Pneumatic Stay-Bolt Drivers, Pneumatic Hoists, Motors, Flue Expanders and Pneumatic Appliances of Every Description

Branch Offices: 1208 Farmers Bank Building, Pittsburgh; 61 Fremont St., San Francisco; Candler Building, Atlanta, Ga.; 1020 First Ave. South, Seattle; 62-64-66 First St., Portland; London; Paris; Berlin; Tokio; Yokohama; Toronto; Montreal; Winnipeg; Vancouver. Works: Aurora, Illinois

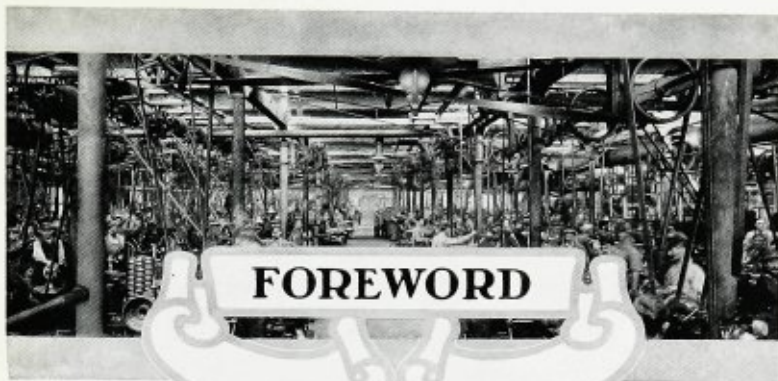
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General Offices: **INDEPENDENT PNEUMATIC TOOL CO.** Eastern Offices:
Thor Building, Chicago 170 Broadway, New York

Cable Address: "Thor," Chicago. **TO FARMERS BANK BUILDING,** **PITTSBURGH, PA.** **Utter's Standard Code Used**



Our Works at Aurora, Illinois



IN submitting this catalog for your consideration we desire to direct your attention to the many unique features incorporated in the construction of THOR Air Tools. The Corliss valve motion in the drills, one-piece long-stroke riveting hammer, and valve mechanism in chipping, calking and flue-beading hammers, are the latest and most scientific improvements in air tools. The high efficiency obtained as a result of these features has made the THOR the most popular tools of their kind ever introduced, and they are recognized everywhere as representing the highest standard.

Since our last general catalog was published we have made many improvements in these tools, the most important of which is the adoption of roller bearings, and a one-piece connecting rod in all drills. The latter replaces the connecting rod and toggle formerly used. Roller bearings in air drills are distinctly a THOR feature as they were first introduced in our Numbers 8 and 9 Close-Corner Machines. The mechanic will readily appreciate the advantage of these features over any other type for reducing friction, and increasing the efficiency and endurance of these machines.

We desire to thank our many customers for their liberal patronage in the past, and it will be our endeavor to merit a continuance of same by maintaining the standard of excellency for which these tools have become so well known.

Respectfully,

INDEPENDENT PNEUMATIC TOOL COMPANY

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THOR, called the Spring God or God of Thunder, was the mightiest god of the old Teutonic or Norse Mythology. He was popularly supposed to wear a red beard, and was girded with a belt of strength; in his hand he swung a mighty hammer with which he subdued the Frost Giants in the Springtime. His chariot was drawn by two goats from whose hoofs and teeth sparks of fire flashed. On his head he wore a crown of stars. Some idea of his size may be gained from the fact that his feet rested on the earth, while his head towered among the clouds. His realm was called Thrudvang and he lived in a mansion of five hundred and forty halls.

Many victories over the giants are credited to THOR. Our ancestors believed that the thunder was the roll of his chariot wheels; the wind, his onward rush; the striking of his hammer, the lightning.

This belief continued among the various Teutonic tribes until about eight hundred years ago. We have many traces of it in our language to-day, the best known being Thursday (Thor's Day); and the trade-mark *Thor* —symbolic of power, endurance, and high efficiency.



Roller Bearing Piston Air Drills

Specifications

Style	Size	Weight Pounds	Air Used Cu. Ft. per Min.	DIMENSIONS					CAPACITIES					Speed Running Free R. P. M.	Size Hose Re- quired Inches
				Length Over All Inches	Distance from Side to Center of Spindle Inches	Diam. and Stroke of Cylinder Inches	Length of Feed Inches	Morse Taper Socket No.	Drilling	Reaming	Tapping	Flue Rolling	Wood Boring		
Non-Reversible Drills	A	65	40	17	4 1/8	2 3/8 x 2	4 3/4	4	3	2 1/2	2 1/2	...	...	200	3/4
	B	45	35	14 1/4	4 1/4	2 1/8 x 1 3/8	4 1/4	4	2 1/2	2	2	...	...	215	3/4
	C	30	24	13 3/4	3 3/8	1 1/2 x 1 1/8	4 3/8	3	1 3/4	1	1	...	...	240	3/4
	D	16	18	11 1/6	2 3/4	1 1/2 x 1 1/4	4	2	1 1/8	...	5/8	...	...	500	3/4
	E Two Speeds	10	15	15 1/2	1 1/2	1 1/8 x 1	2 1/4	1	3/8	...	...	...	...	750-1500	1/2
	F	10	15	15 1/2	1 1/2	1 1/8 x 1	2 1/4	1	3/8	...	...	...	...	750-1500	1/2
	G	10	14	14 3/8	1 1/2	1 1/8 x 1	2 1/4	...	2 1/4	...	...	...	...	1500	3/8
Reversible Drills	AA	70	40	18 3/8	4 7/8	2 3/8 x 2	4 3/4	4	3	2 1/2	2 1/2	4	...	160	3/4
	BB	55	35	16 3/4	4 1/4	2 1/8 x 1 3/8	4 3/4	4	2 1/2	2	2	3	...	190	3/4
	CC	32	24	15 3/4	3 3/8	1 1/2 x 1 1/8	4 3/8	3	1 3/4	1	1	2 1/2	...	240	3/4
Reversible Wood-Boring Machines	AW	30	25	15 1/4	3 5/8	1 1/2 x 1 1/8	...	...	...	...	...	...	4	450	3/4
	BW	15	20	13 3/8	2 3/4	1 1/2 x 1 1/4	...	...	...	...	...	...	2	750	3/4
	CW Two Speeds	10	14	14 3/8	1 3/4	1 1/8 x 1	...	...	...	...	...	...	1	750-1500	1/2
Grinder	H	20	20	11 1/2	1 3/8	1 1/2 x 1 1/4	...	...	...	...	...	...	...	1000	3/4
Compound Drills	N Non- Rev.	55	45	16 1/8	4 1/4	2 x 2	4 3/4	4	...	...	...	...	...	70	3/4
	NN Rev.	65	45	18	4 1/4	2 x 2	4 3/4	4	...	...	...	...	...	65	3/4
	P Non- Rev.	43	30	15 1/2	3 3/8	1 1/2 x 1 1/8	4 3/8	4	...	...	...	...	...	110	3/4
	PP Rev.	45	30	16 3/8	3 3/8	1 1/2 x 1 1/8	4 3/8	4	...	...	...	...	...	105	3/4
	SS Rev.	20	20	16 1/2	2 3/8	1 1/2 x 1 1/4	4	3	2	1 3/4	1 1/4	2	...	120	3/4

For extra heavy Drilling, Reaming,
Tapping and Flue Rolling



Plain Bearing Piston Air Drills

Specifications

Style	Size No.	Weight Pounds	Air Used Cu. Ft. per Min.	DIMENSIONS			Morse Taper Socket No.	CAPACITIES					Speed R. P. M.	Size Hose Required Inches	
				Length Over All Inches	Dist. 'ce from Side to Center of Spindle Inches	Diam. and Stroke of Cylinder Inches		Length of Feed Inches	Drilling	Reaming	Tapping	Flue Rolling			Wood Boring
Non-Reversible Drills	0	6.2	40	16	4 3/4	2 3/8 x 2	4 3/4	4	3	2 1/2	2 3/8	1 1/2	1 1/2	200	3/4
	1	4.5	35	14 1/4	3 3/8	2 x 2	4 3/4	4	2 1/2	2	2	1 1/2	1 1/2	215	3/4
	2	30	24	12 3/4	2 1/2	1 1/2 x 1 5/8	4 3/8	3	1 3/4	1	1	1 1/2	1 1/2	240	3/4
	4	16	18	10 1/2	2 1/4	1 1/2 x 1 3/4	4	2	1 3/8	1 1/2	1 1/2	1 1/2	1 1/2	500	3/4
	3 Two-Speeds	10	15	13 1/4	1 3/4	1 5/8 x 1	2 3/4	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	750-1500	3/2
Reversible Drills	23	10	15	13 1/4	1 3/4	1 5/8 x 1	2 3/4	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	750	3/4
	10	10	14	12 1/2	1 3/4	1 5/8 x 1	2 3/4	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1500	3/2
	00	69	40	16	4 3/4	2 3/8 x 2	4 3/4	4	3	2 1/2	2 1/2	4	1 1/2	160	3/4
Reversible Wood-Boring Machines	21	5.5	35	14 1/4	3 3/8	2 x 2	4 3/4	4	2 1/2	2	2	3	1 1/2	190	3/4
	22	3.2	24	12 3/4	2 3/8	1 1/2 x 1 5/8	4 3/8	3	1 3/4	1	1	2 1/2	1 1/2	240	3/4
	6 Two-Speeds	10	14	13 1/4	1 3/4	1 5/8 x 1	2 3/4	1	1 1/2	1 1/2	1 1/2	1	1 1/2	750-1500	3/4
Close-Quarter Drills	5	15	20	12 5/8	2 1/4	1 1/2 x 1 1/4	2 3/4	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	750	3/4
	14	30	25	14 1/2	3 3/8	1 5/8 x 1 5/8	4 3/8	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	450	3/4
	8	26	25	7 1/8	1 5/8	1 1/2 x 1 5/8	2 1/2	3	1 1/4	1	1	1 1/2	1 1/2	340	3/4
Grinder	9	30	25	8 1/8	1 5/8	1 1/2 x 1 5/8	2 1/2	4	1 1/4	1	1	1 1/2	1 1/2	300	3/4
	7	20	20	18	1 3/4	1 1/2 x 1 1/4	2 3/4	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	3000	3/4
	20 Rev.	20	20	16 1/2	2 5/8	1 5/8 x 1 1/4	2 3/4	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	120	3/4
Compound Drills	24	5.5	45	16 1/4	4	2 x 2	4 3/4	4	2	1 1/4	1 1/4	2	1 1/2	70	3/4
	25 Rev.	6.5	45	16 1/4	4	2 x 2	4 3/4	4	2	1 1/4	1 1/4	2	1 1/2	65	3/4
	26	4.3	30	15 1/2	3 3/8	1 1/2 x 1 3/8	4 3/8	4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	110	3/4
	27 Rev.	4.5	30	15 1/2	3 3/8	1 1/2 x 1 3/8	4 3/8	4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	105	3/4

For extra heavy Drilling, Reaming, Tapping and Flue Rolling

No. 8 and 9 close quarter drills are of the roller bearing type.



Pneumatic Hammers

Specifications

Pneumatic Hammers					Stay-Bolt Driver					Combination Riveter				
Style	Size	Piston Diameter Inches	Stroke Inches	Weight Pounds	Length Over All Inches	Air Used per Min. Cu. Ft.	Blows per Min.	Size Hose Inches	Work Adapted For	Style	Size Hose Inches	Blows per Min.	Length Over All Inches	Weight Pounds
Chipping, Calking, and Flue Beading Hammers Duplex Valves	1	1 1/8	1	8	10 1/2	12	3000	1 1/2	Very light chipping and scaling.	Combination Riveter	1 1/2	3000	10 1/2	8
	2	1 1/8	2	9	12 1/2	13	2000	1 1/2	Light chipping, calking and flue beading.		1 1/2	2000	12 1/2	9
	3	1 1/8	3	10	14 1/2	14	1400	1 1/2	General chipping and calking.		1 1/2	1400	14 1/2	10
	4	1 1/8	4	11	15 1/2	15	1000	1 1/2	Heavy chipping and calking.		1 1/2	1000	15 1/2	11
	5-8	1 1/8	5	12	17 1/2	17	800	1 1/2	Extra heavy chipping.		1 1/2	800	17 1/2	12
Chipping, Calking and Flue Beading Hammers Single Valve	A	1 1/8	1	8	11	12	3700	1 1/2	Very light chipping and scaling.	Combination Riveter	1 1/2	3700	11	8
	B	1 1/8	2	9	13	13	2500	1 1/2	Light chipping, calking and flue beading.		1 1/2	2500	13	9
	C	1 1/8	3	10	15	14	1850	1 1/2	General chipping and calking.		1 1/2	1850	15	10
	D	1 1/8	4	11	16	15	1250	1 1/2	Heavy chipping and calking.		1 1/2	1250	16	11
	E	1 1/8	5	12	18	17	950	1 1/2	Extra heavy chipping steel castings.		1 1/2	950	18	12
Duplex Valves Light Riveters Single Valve	40	1 1/8	4	13	16 3/4	18	1000	1 1/2	Driving rivets up to 3/8 inch in diameter.	Combination Riveter	1 1/2	1000	16 3/4	13
	50	1 1/8	5	15	18 1/2	18	800	1 1/2	Driving rivets up to 1/2 inch in diameter.		1 1/2	800	18 1/2	15
	DD	1 1/8	4	11 1/2	14	18	1250	1 1/2	Driving rivets up to 3/8 inch in diameter.		1 1/2	1250	14	11 1/2
	EE	1 1/8	5	12 1/2	15 1/2	18	1100	1 1/2	Driving rivets up to 1/2 inch in diameter.		1 1/2	1100	15 1/2	12 1/2
	60	1 1/8	6	17	16 1/2	20	900	1 1/2	Driving rivets up to 3/4 inch in diameter.		1 1/2	900	16 1/2	17
One-Piece Long-Stroke Riveters	80	1 1/8	8	19	19	22	770	1 1/2	Driving rivets up to 1/2 inch in diameter.	Combination Riveter	1 1/2	770	19	19
	85	1 1/8	9	20	20	22	820	1 1/2	Driving rivets up to 3/4 inch in diameter.		1 1/2	820	20	20
	90	1 1/8	9	21	20 1/2	22	700	1 1/2	Driving rivets up to 1/2 inch in diameter.		1 1/2	700	20 1/2	21
	90 S	1 1/8	9	21	20 1/2	22	700	1 1/2	Driving rivets up to 1/2 inch in diameter.		1 1/2	700	20 1/2	21
	96	1 1/8	9	34	32 1/2	22	800	1 1/2	Driving all sizes of stay-bolts.		1 1/2	800	32 1/2	34
Stay-Bolt Driver	4	1 1/8	4	30	22	18	1000	1 1/2	Driving rivets up to 1/2 inch in diameter.	Combination Riveter	1 1/2	1000	22	30
Combination Riveter														

When ordering chipping and calking hammers please specify whether round or hexagon nozzles are desired.
When ordering riveting hammers indicate the size and style (bottom or cone-head) rivet set required.

Three chisel blanks furnished with each hammer

Thor Air Tools—Care and Operation

THIS book would not be complete without some reference to this most important subject. When you compare these tools with other shop equipment, such as the drill press, lathe and milling machine, you will observe that while all of these machines are of fine material and workmanship the air tool is an exceptionally fine piece of mechanism. Being for portable use it must be sufficiently light for convenience in handling, while the work required of it demands great power and speed. Although other shop tools are generally used in the tool-room or factory under the most favorable conditions and kept well lubricated, cleaned and free from rust, the air tool is often used in the foundry or shop yard, exposed to sand or dirt and weather conditions, and often goes without lubrication until it stops. However, in justice to the user we must say that these conditions are fast improving, as he is beginning to realize the importance of caring for this equipment.

If the following rules are observed it cannot help but result in more efficient service and longer life for the air tool.

Always blow out the hose and see that tool is well oiled before attaching hose.

It will pay you to use a lubricant of good quality. For drills we recommend a good grease equal to Helmet grease for crank chamber, and a light mineral oil for the drill valves and for air hammers.

Wash machines out occasionally with kerosene, after which they should be thoroughly oiled.

Oil tools at least once every hour when in service. By oiling around the chisel shank in chipping and calking hammers the tool will work better and last longer.

Do not overload tools by selecting a machine to do work beyond its rated capacity.



Roller Bearing Piston Air Drills



Sectional View

The Acme of Air Drill Construction



Compound Feature

Provided with roller bearings.

Used on all THOR Compound Drills



Roller Bearing Piston Air Drills

THOR Roller Bearing Drills possess the same general features which have made our machines so popular among users of this class of tools.

The Corliss valve construction and large air chamber, which two features explain the secret of the great power and speed of THOR Drills, and the telescopic feed-screw have been retained. The size of the spindle in most cases has been increased, but the most radical improvement is in the crank-shaft, crank-shaft bearings, connecting rods, eccentrics and eccentric straps. The crank-shaft has been greatly strengthened, and roller bearings provided for same. The rollers are of ample length and diameter and are retained in a machined brass cage. The bushings have a slip-fit into the casing and are hardened and ground. The crank-shaft has rounded ends and end thrust against a hardened plate, which reduces friction to a minimum.

On account of the increased size of the crank-shaft, and ample size of rollers, the center bearing is dispensed with. The eccentric is smaller in diameter, and being mounted on the crank-shaft still further reduces the friction.

The toggle and connecting rod has been replaced with a one-piece connecting rod, similar to that used in the THOR Numbers 8 and 9 Close-Quarter Drills, which has proven so satisfactory in the past.

Another very desirable feature is the adjustable eccentric strap, by which the timing of the valves can be adjusted to perfection. This consists of a right- and left-hand connection in the middle with a check-nut at each end. The length of the strap can be adjusted by turning this connection.

In addition to the improvements described above we have provided **roller bearings** for the Idler or planet gears in our **compound drills**.

On Sizes E, G and CW drills the entire spindle and counter-shaft have roller bearings, and the diameter of the spindle and counter-shaft has been increased in sizes E and CW machines. Heavier gears have been adopted in these two latter sizes, which greatly increases their endurance.

An improved **shifter mechanism** is used on the **two-speed machines**, sizes E and CW.

Thor

Roller Bearing Drills

Non-Reversible and Reversible



Size A
Non-Reversible

Weight 65 lbs.
For drilling, reaming and tapping.



Size C
Non-Reversible

Weight 30 lbs.
For drilling, reaming and tapping.



Size B
Non-Reversible

Weight 45 lbs.
For drilling, reaming and tapping.



Size SS
Reversible Compound

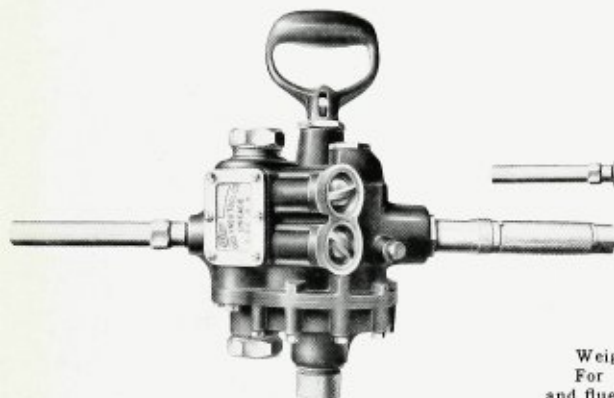
Weight 20 lbs.
The One-Man stay-bolt machine.

Built in all Sizes—Equipped with roller bearings

Thor

Roller Bearing Drills

Reversible



Size AA

Weight 70 lbs.

For drilling, reaming, tapping, flue rolling and valve setting.



Size CC

Weight 32 lbs.

For drilling, reaming, tapping and flue rolling.



Size BB

Weight 55 lbs.

For drilling, reaming, tapping and flue rolling.



Size BW
Wood-Boring Machine

Weight 15 lbs.

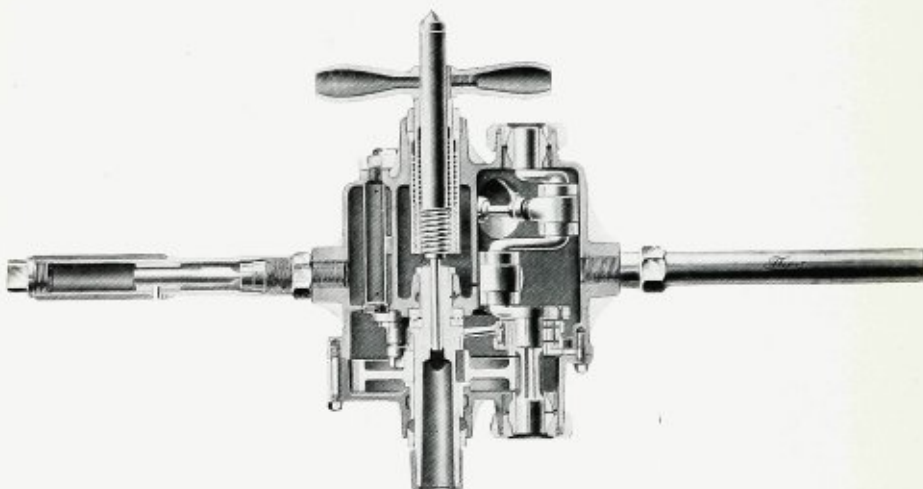
For boring in wood up to 2 inches in diameter.

For Complete List see Page Eight—Corliss Valve Motion



Piston Air Drills

Non-Reversible



Sectional View Non-Reversible Plain Bearing Drill

The Piston Air Drills and Reversible Wood-Boring Machines are of the four-cylinder reciprocating piston type, the cylinders being arranged in pairs for a two-way opposed crank-shaft. **They have the Corliss valve motion**, allowing the live air to be magazined and controlled up to within three-eighths of an inch or less from the cylinder, which, when released quickly, acts on the piston instantaneously. This construction allows no air to pass through except what is absolutely needed and used in driving the motor, and effects a very great saving in the consumption of air.

All joints in the case have been dispensed with excepting one between gear case and cylinder, thereby simplifying construction, assisting in keeping the working parts in true line and preventing leakage. They are easily accessible and require very little attention and repairs. All drills are fitted with Morse Taper Standard Sockets. The telescopic feed with which they are equipped is one of their many good features, as it gives larger range than any other construction and is absolutely safe when the longest limit is reached.

Thor

Piston Air Drills

Reversible



Sectional View Reversible Plain Bearing Drill

The reversible action of the drills is obtained by moving sliding collar on air handle away from sleeve, and turning the sleeve full over to the right; turning to the left starts the drill forward. The sliding collar is only a safety appliance, and by moving same toward sleeve drill cannot be reversed, but when moved out of the way the tool is reversed instantly in either direction.

In the Nos. 24 and 25 drills, compound gearing is employed, insuring great power with slow speed without the use of the cumbersome and unsatisfactory reducing motion used with all other makes of air drills to accomplish these results. They are designed for extra heavy drilling, flue rolling, tapping, reaming, setting valves, boring cylinders and all classes of heavy work.

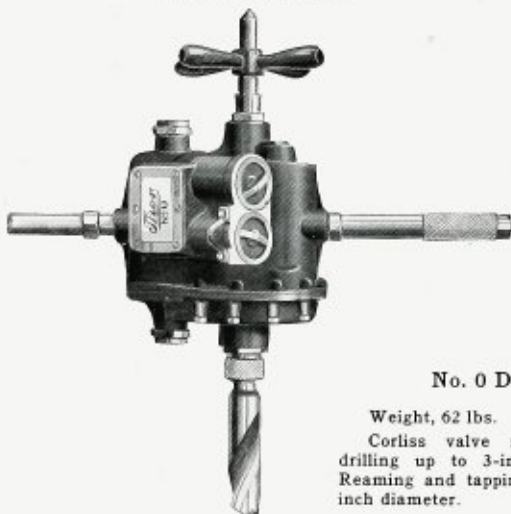
But one set of ball bearings is used, placed between the gear case and spindles.

All drills are fitted with removable plates over crank chambers, rendering cranks, toggles, rods, etc., easy of access.

Thor

Piston Air Drills

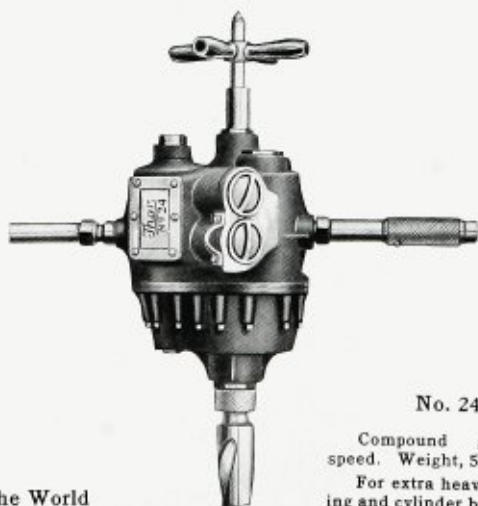
Non-Reversible



No. 0 Drill

Weight, 62 lbs.

Corliss valve motion. For drilling up to 3-inch diameter. Reaming and tapping up to 2½-inch diameter.



No. 24 Drill

Compound geared. Slow speed. Weight, 55 lbs.

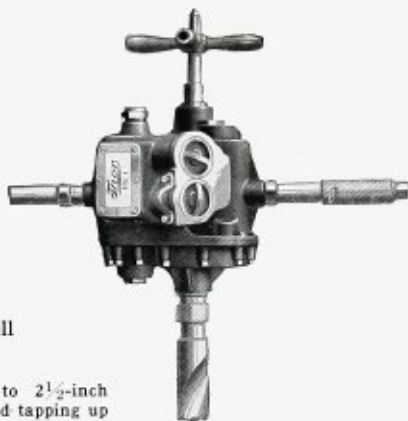
For extra heavy drilling, reaming and cylinder boring.

Standard of the World



Piston Air Drills

Non-Reversible



No. 1 Drill

Weight, 45 lbs.

For drilling up to 2½-inch diameter, reaming and tapping up to 2-inch diameter.

Telescopic Feed



No. 2 Drill

Weight, 30 lbs.

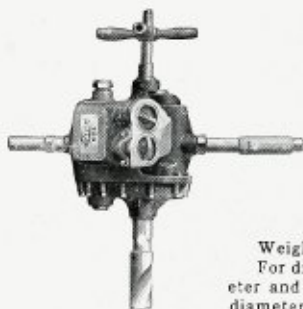
For drilling up to 1¼-inch diameter, reaming and tapping up to 1-inch diameter.

Sent on Trial at our Expense

Thor

Piston Air Drills

Non-Reversible



No. 4 Drill

Weight, 16 lbs.

For drilling up to $\frac{7}{8}$ -inch diameter and light reaming to $\frac{3}{4}$ -inch diameter.

Use Thor Tools to secure Best Results



No. 3 Breast and Screw
Feed Drill

Two speeds. Weight, 10 lbs.
For drilling up to $\frac{7}{16}$ -inch in metal.



No. 10 Breast and Screw
Feed Drill

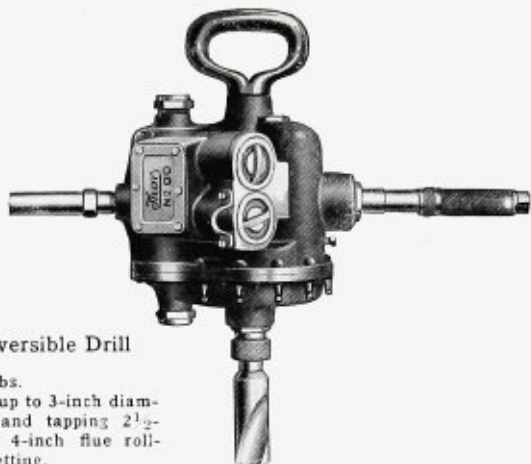
One speed. Weight, 10 lbs.
Capacity $\frac{1}{2}$ -inch drilling.

Thor Air Drills always give Satisfaction



Piston Air Drills

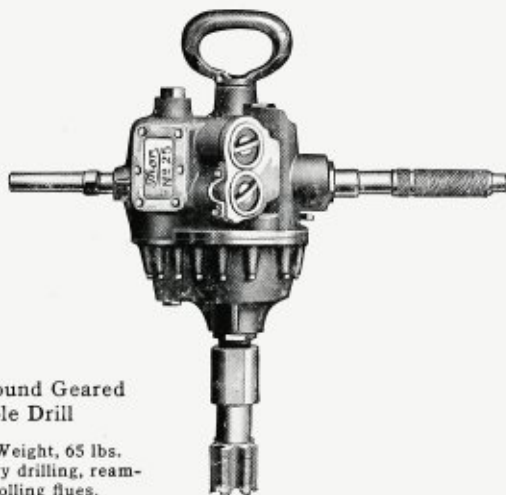
Equipped with Telescopic Feed or Grip Handle



No. 00 Reversible Drill

Weight, 69 lbs.

For drilling up to 3-inch diameter, reaming and tapping 2½-inch diameter, 4-inch flue rolling and valve setting.



No. 25 Compound Geared
Reversible Drill

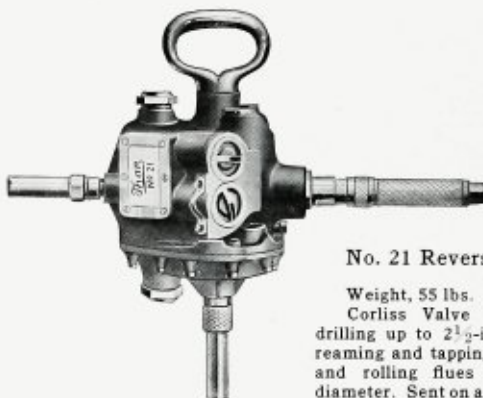
Slow speed. Weight, 65 lbs.

For extra heavy drilling, reaming, tapping and rolling flues.

Thor

Piston Air Drills

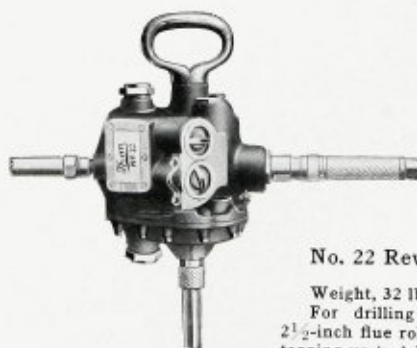
Equipped with Telescopic Feed or Grip Handle



No. 21 Reversible Drill

Weight, 55 lbs.

Corliss Valve Motion. For drilling up to 2 $\frac{1}{2}$ -inch diameter, reaming and tapping up to 2-inch and rolling flues up to 3-inch diameter. Sent on approval.



No. 22 Reversible Drill

Weight, 32 lbs.

For drilling up to 1 $\frac{1}{4}$ -inch, 2 $\frac{1}{2}$ -inch flue rolling, reaming and tapping up to 1 inch.

Thor Drills are Supreme—Mechanically and Economically



Wood-Boring Machines

Fitted with Chucks to receive one-half inch Round Shank Bits



No. 6

The only Reversible Boring Machine of its size made

No. 6 Reversible Wood-Boring Machine.
Weight, 10 lbs. Will bore into wood up to 1 inch diameter. Has two speeds—fast (1500 rev. per min.) for light work, and slow (750 rev. per min.) for medium work up to its capacity.

No. 5 Reversible Wood-Boring Machine.
Weight, 15 lbs. For boring in wood up to 2 inches in diameter.

No. 14 Reversible Wood-Boring Machine.
Weight, 30 lbs. For boring in wood up to 4 inches in diameter.



No. 14



No. 5

Invaluable for Car, Dock, and Shipyard Work



Close-Quarter Piston Air Drills

Non-Reversible

These drills are designed for use in extremely close places where the ordinary drill cannot be operated. They are built in two sizes—No. 8, being equipped with a No. 3 Morse Taper Socket, and No. 9, which is equipped with No. 4 Morse Taper Socket. The dimensions and capacities are given on page nine.

The spindle is at one extreme end of the tool and the motor is at the opposite end. The motor consists of two cylinders parallel with each other and at right angles to the spindle, center line of both cylinders centering on center of spindle. The pistons are double-acting and operate on a two-throw crank. Between the crank throws at the center are located the eccentrics—cranks and eccentrics being one forging. The eccentric straps operate directly on balanced cylindrical piston valves, having a reciprocating motion. The air is taken in centrally between the cylinders, and the valves control the air as close to the cylinder bore as material will permit. Geared to the crank-shaft proper is another two-throw crank, diametrically opposed. This crank operates directly on two oscillating levers centered on the drill spindle proper and having their bearings around the same. These levers are provided with pawls of practically the whole thickness of the lever. The pawls operate on ratchet teeth sunk in the spindle, the outer circumference, or point of teeth, leaving ample stock for bearings of the levers.

The lever-operating crank is arranged to have its power stroke on the part of the revolution farthest away from the spindle. It therefore makes the speed of lever more uniform, pulls forward considerably more than its half revolution, and returns quickly. The crank being opposed, the motion of the drill spindle is continuous, with only slight variation.

The engine crank proper is not on the usual ninety degree angle, but has an angle of one hundred and thirty-five degrees, thus allowing two pistons to pull together when the position of the levers require the greatest power. This makes the drill in a degree self-regulative, and tends to still further govern the speed of the entire revolution of drill spindle.

These drills are provided with a reversible ratchet feed mechanism operated within the width of the body of the drill itself. A poppet valve throttle controls the speed and the power to a nicety, and also acts as a handle.



Close-Quarter Piston Air Drills

Non-Reversible

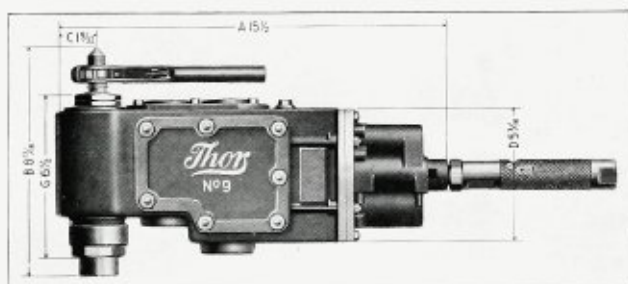
Specifications

No. 8

No. 8 Close-Quarter Drill. Weight, 26 lbs. Speed, 140 rev. per min. Will drill up to 2 inches in diameter and ream up to $1\frac{1}{4}$ inches in diameter.

Dimensions

A—Distance from throttle connection to outside of spindle case	15 $\frac{1}{2}$ in.
B—Distance from point of feed screw to end of socket	8 $\frac{1}{8}$ in.
C—Radius from center of feed screw to outside of case	4 $\frac{1}{2}$ in.
D—Width of case at cylinder flanges	5 $\frac{3}{8}$ in.
G—Width of case at spindle	6 $\frac{3}{8}$ in.



No. 9

No. 9 Close-Quarter Drill. Weight, 30 lbs. Speed, 100 rev. per min. Will drill up to 3 inches in diameter and ream up to 2 inches in diameter.

Dimensions

A—Distance from throttle connection to outside of spindle case	15 $\frac{1}{2}$ in.
B—Distance from point of feed screw to end of socket	8 $\frac{1}{8}$ in.
C—Radius from center of feed screw to outside of case	1 $\frac{3}{8}$ in.
D—Width of case at cylinder flanges	5 $\frac{3}{8}$ in.
G—Width of case at spindle	6 $\frac{1}{2}$ in.



No. 7 Grinding Machine

A Labor Saver



Sent On Trial

No. 7 Portable Pneumatic Grinding Machine. Weight, 20 lbs. Designed for grinding castings, polishing, buffing, etc. Easily controlled. Speed, 3000 rev. per min. Consumes about 20 cu. ft. of free air per minute at 80 lbs. pressure.

This machine is of the reciprocating piston type, having four pistons direct acting on the crank, and is equipped with the **Corliss valve motion**, which gives it great power.

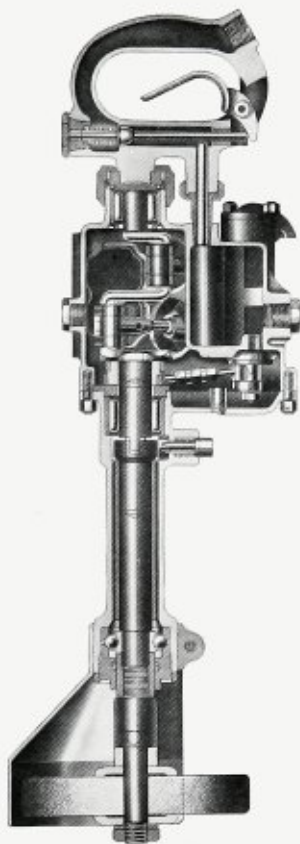
The grinding spindle is carried in a housing extending from the end of the motor in line with the crank-shaft, and runs on ball bearings, and has a packing ring which prevents the lubricating oil from running out of the machine.

A grip handle in line with grinding spindle and the outside housing of spindle serve as handles.

Mandrels of suitable length or shape may be attached to grinding spindle for driving emery wheels, buffing or polishing discs.

Thor

Size H Roller Bearing Grinder



Sectional View showing Roller Bearings on Crank-Shaft, Guard over Wheel and Pistol Grip Handle. The Most Successful Air Grinding Machine Made

Specifications on Page Eight

Thor

Pneumatic One-Piece Long-Stroke Riveting Hammers



Sectional View of Thor Long-Stroke Riveting Hammer

The main feature and the great advantage of this long-stroke riveting hammer is in its one-piece construction. The handle, barrel and valve chambers are all in one solid piece of steel forging. All other makes of riveting hammers are made in three main parts—barrel, valve block and handle—necessitating the use of couplings, clamps, keys, lock-nuts, and other complicated mechanism, which frequently break, become loose and cause considerable delay, annoyance and expense by the necessity of their having to be renewed or tightened.

The main valve lies parallel with the main bore, but is not directly operated with the air in the downward stroke. When the piston returns, it opens what is termed the auxiliary valve, the purpose of which is to admit a slight amount of air, which lightly starts the piston downward, and also supplies air for the power stroke. After short travel in the downward direction, the main valve opens and admits the full volume of air direct and very close to the piston. The piston, therefore, from a gentle start gets an extremely forceful and quick acting blow and quicker return, with practically no vibration. On account of its one-piece construction, the hammer is lighter and shorter than any other make. There is no part of the hammer that can possibly work loose from vibration. All parts are easily accessible. The throttle valve is arranged so that a light or heavy blow can be given at will. The one-piece long-stroke riveting hammers have no delicate mechanism, are very easily handled and operated, and do very effective work.

Thor

One-Piece Long-Stroke Riveting Hammers



No. 60 Long-Stroke One-Piece Riveting Hammer. For Driving Rivets up to $\frac{3}{4}$ Inch Diameter



No. 80 Long-Stroke One-Piece Riveting Hammer. For Driving Rivets up to $\frac{7}{8}$ Inch Diameter



No. 90 Long-Stroke One-Piece Riveting Hammer. For Driving Rivets up to $1\frac{1}{4}$ Inches Diameter

Unexcelled for bridge, boiler and structural riveting. The ideal riveting hammer. **Made of one solid piece of drop forging**, obviating all difficulty usually experienced with coupling between the barrel and handle breaking or loosening in other makes of riveting hammers (which all have these parts separate), necessitating frequent tightening of the nuts and consequent trouble and expense.

These hammers are not an experiment. **THEY ARE A DECIDED SUCCESS.** They will drive rivets faster and better and cost about 50 per cent less for maintenance than any other air hammers on the market.

Thor

Chipping, Calking and Light Riveting Hammers



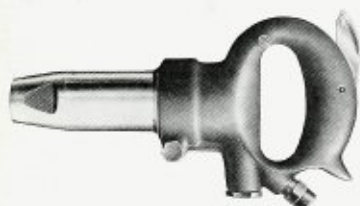
Sectional View of Chipping and Calking Hammer

Are equipped with duplex valves, which, on account of their extreme lightness and the double action, throw open the air inlet quicker and more direct and leave a larger exhaust area than is possible with hammers equipped with a single valve. The air enters the hammer through inlet below handle, being controlled by the trigger. It enters the chamber at the rear of the cylinder and presses apart the two valves in this chamber, allowing the air to enter behind the piston. The piston is driven forward until the port near the end of the stroke is uncovered. This admits air to the outer sides of the valves, and as the area of the outer sides is larger than that of the inner, the excess pressure causes the valves to close. Air is then admitted to the opposite end of the piston, driving it back until another set of ports is uncovered, releasing the air on outer sides of valves, when the valves will again be forced open.

THOR Chipping and Calking Hammers are of simple construction, very easily operated, and most efficient in their work.

Thor

Pneumatic Chipping, Calking and Beading Hammers



No. 1 Hammer

Weight, 8 lbs. For very light chipping and scaling.



No. 2 Hammer

Weight, 9 lbs. For light chipping, calking and beading flues.

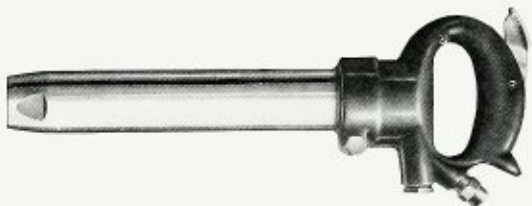
No. 3 Hammer

Weight, 10 lbs. For general chipping and calking.



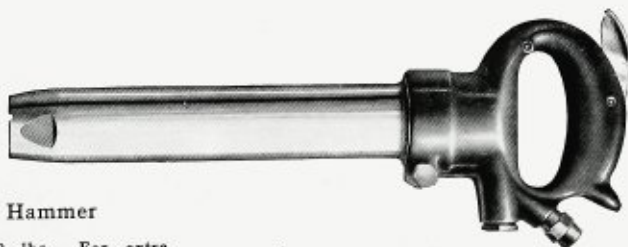
No. 4 Hammer

Weight, 11 lbs. For heavy chipping.



No. 5 Hammer

Weight, 12 lbs. For extra heavy chipping.



Thor

Light Riveting Hammers

The highest development in air tool construction is represented in these hammers.



No. 40 Riveting Hammer. Weight, 13 lbs. For automobile and other light riveting, up to $\frac{1}{2}$ inch diameter.

Far Superior to all Other Makes



No. 50 Riveting Hammer. Weight, 15 lbs. For tank and light structural iron riveting, up to $\frac{1}{2}$ inch diameter.

Sent on Trial. Express Charges paid Both Ways if not Satisfactory

Thor

Pneumatic Hammers

No. 3 Chipping and
Calking Hammer

With inside trigger—special.



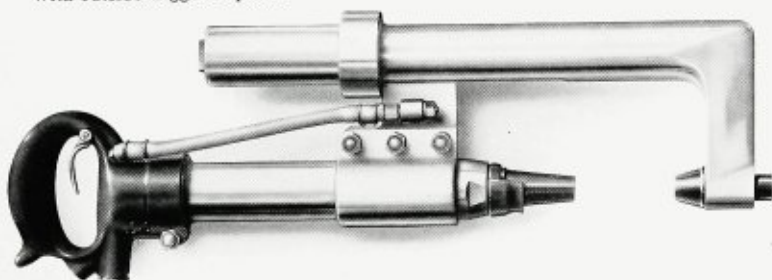
No. 5-S Chipping Hammer

Five-inch stroke by $1\frac{1}{8}$ -inch
bore—special.



No. 90 One-Piece Long-
Stroke Riveting Hammer

With outside trigger—special.



No. 4 Yoke Riveter

Adapted for driving rivets in automobile frames and similar work up to $\frac{1}{2}$ -inch diameter.



Chipping, Calking and Beading Hammers

Description



The THOR Chipping Hammer with a single valve has been designed especially for use in steel foundries and for general foundry work. It is also well adapted for every purpose for which this class of tools is used, such as chipping, calking, flue beading and light riveting.

Special attention has been given to making a hammer that would stand up under all conditions, and at the same time be simple in construction and develop the maximum power.

In addition to other refinements the principal feature consists of an entirely new valve mechanism, the valve block consisting of two solid cylindrical parts, hardened and ground. The valve is a cylindrical shell (hardened and ground) on the outside of the valve block, with wearing surface covering practically the entire block. Any mechanic will readily appreciate the advantage of this construction. When the handle is on, the valve is entirely protected. The wearing surface is many times larger in proportion to its weight than any other hammer made. All wearing surfaces are hardened. The construction allows for more than ample inlet and exhaust ports, and the large areas for shifting the valves make it shift with extreme precision with relation to the travel of the piston. The vibration is therefore less than in any other hammer.

By removing the handle the valve can be examined without taking the block apart, although the block can be taken apart without the use of any tools.

Sizes DD and EE light riveting hammers have the same principle of valve construction as the chippers, but are of the long-stroke type.

Thor

Chipping, Calking and Beading Hammers



Size A

Weight, 8 lbs. For very light chipping and scaling.



Size B

Weight, 9 lbs. For light chipping and calking, and beading flues.

Size C

Weight, 10 lbs. For general chipping and calking.



Size D

Weight, 11 lbs. For heavy chipping.



Size E

Weight, 12 lbs. For extra heavy chipping.





Pneumatic Stay-Bolt Drivers

Description

The boilermaker will appreciate the importance of the THOR Stay-Bolt Driver, a tool designed for driving both ends of a stay-bolt at the same time. When used in pairs, as shown in the picture on page 72, they are capable of driving 120 stay-bolts per hour under favorable conditions where boiler can be turned on the side; where they are used with boiler in upright position, 50 bolts per hour or 100 ends; and are also used for flexible stay-bolts, radial stays, crown stays, mud-ring rivets, belly patches, car tank work, etc. Only one man required to operate each tool, the tool doing its own holding-on.

This tool is simple in construction, very powerful and durable. The THOR Stay-Bolt Driver appeals to the trade, inasmuch as the operator receives no jar during the operation, as is usually experienced in driving stay-bolts with ordinary riveter. He is therefore capable of increasing the output with very little effort. The THOR Stay-Bolt Driver is no experiment, having been thoroughly tested out, and is now being used by the largest railroad companies in the United States and Canada.

To operate, open air valve to holder-on, which moves out piston, then open riveter throttle valve, which is held open by spring. Riveter is now working. Operator rotates tool one-quarter or one-half turn while bolt is being driven, which only takes a few seconds. When bolt is finished, close throttle valve on riveter by releasing spring, then close air valve on holder-on, and you are ready to move to the next bolt.

Thor

Pneumatic Stay-Bolt Drivers

The First and Only Successful Pneumatic
Stay-Bolt Driver Made

Size No. 96



Weight, 34 lbs. each. Length
over all, 32½ inches.



Adapted for driving all sizes
of stay-bolts.



Pneumatic Rivet-Heating Forge



What It Does

1. It heats easily 200 rivets per hour.
2. It does not burn rivets.
3. It has a constant fuel feed.
4. It consumes only 2 cubic feet of air per minute, and burns a small amount of fuel per day.
5. It weighs fifty (50) pounds, about half as much as a hand forge.
6. It heats twenty rivets at once.

Directions

The hollow cylinder above the fire contains the fuel, which descends in a highly heated condition and feeds it. The cylinder and funnel arrangement from which the air hose is led is an efficient pneumatic draught inducer that maintains a steady and easily regulated air supply.

The upper part of the forge is pivoted, enabling the operator to reach any rivet by simply revolving the fire bed.

Thus it is simple in operation and can be efficiently worked by inexperienced rivet heaters.

The fire-pan should be lined with fire-clay. Use fine pea hard coal or coke screenings and keep the magazine well filled. The size of the fire is adjusted by raising or lowering magazine.

Consequently

1. You can work your compression riveter or air hammers to their fullest capacity.
2. It effects a saving of rivets and furnishes a smooth hot rivet that is not burned or melted on the end.
3. There is no delay on account of having to clean the fire.
4. It is as economical as a hand forge, everything considered.
5. It can be used on scaffold, platform or trestle work.
6. Different sizes of rivets can be in fire and available at all times.

Thor

Pneumatic Holder-On



No. 1 Pneumatic
Holder-On

Furnished complete with carrying handle, stop valve and rivet set.



No. 2 Pneumatic Holder-On

Furnished complete with live air handle and rivet set.

This pneumatic holder-on is of the single piston type, made with a heavy case-hardened steel plunger, with ample area to hold rivet against the work, and provided with a spring-pressed plunger to hold the rivet set. This holder-on is as simple as it can be made, and does the work satisfactorily.

Very economical and efficient device for use in connection with riveting hammers. Made from steel and carefully fitted.

Shortest length over all, including set, $10\frac{1}{2}$ inches. Diameter of piston, $3\frac{1}{8}$ inches. Stroke of piston, 4 inches. Distance from center of rivet set to side of cylinder, $1\frac{3}{4}$ inches. Weight, 20 lbs. Size hose connection, $\frac{3}{8}$ inch.

Thor

Flue Rollers and Special Air-Hose



For use with air machines. Self-feeding. Made in all sizes.



Special Air Hose, 7 ply. Very best quality. Made expressly for use in connection with pneumatic tools. Furnished plain or wire-wound, in any size desired.



Hose Couplings

For Pneumatic or Water Use—Best Made



Hose to Pipe
(Male Pipe End)



Hose to Pipe
(Female Pipe End)

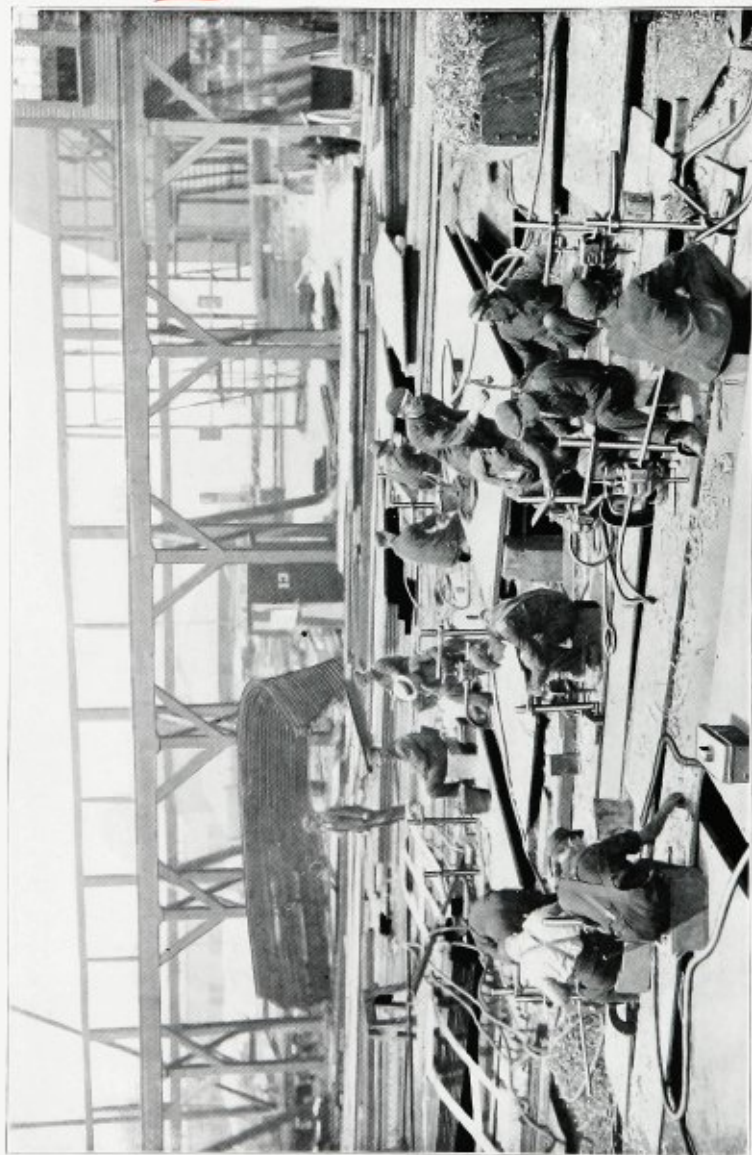


Hose to Hose

- | | |
|--|--|
| 1. This coupler is absolutely tight. | 1. Leaky joints reduce compressor capacity. |
| 2. Both parts are alike—no male or female parts. | 2. Both ends of hose have duplicate couplings. |
| 3. Gaskets cannot blow or fall out. | 3. No time wasted looking for washers. |
| 4. Made of tough bronze—cannot corrode. | 4. Not affected by weather or moisture. |
| 5. Made for 1 inch, $\frac{3}{4}$ inch, $\frac{1}{2}$ inch $\frac{3}{8}$ inch hose or pipe with the same sized head, so that small hose can be coupled to large without the use of reducers. | 5. Cannot be blocked by dirt between working parts. |
| 6. Coupled by a third turn of the hose. | 6. This is where time is saved. |
| 7. Made in hose to hose or pipe to hose with screwed end connections, as in illustration. | 7. Can be connected in one-tenth of the time required for ordinary couplers. |
| | 8. No stripped threads or delays. |

In ordering hose couplings please specify whether complete or half couplings, hose to hose or hose to pipe are desired, and state whether inside or outside thread is wanted on pipe ends.

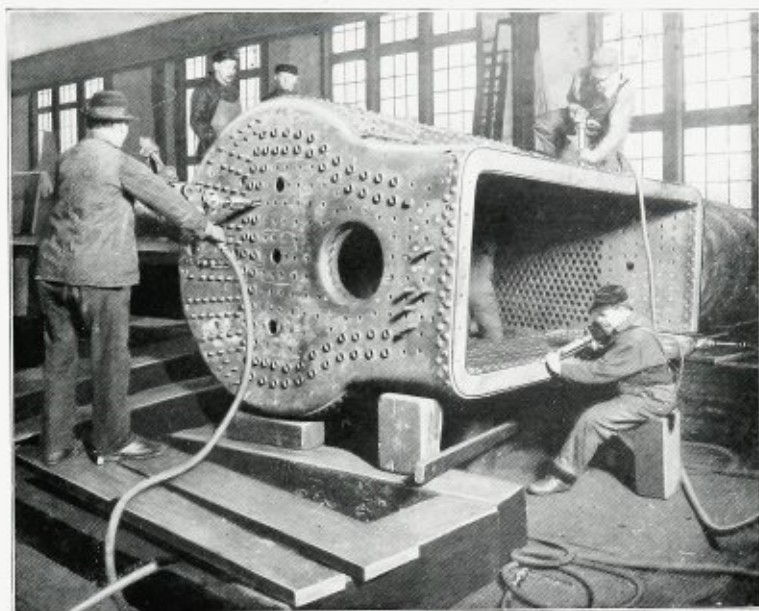
Thor Piston Air Drills



THOR Air Drills in Operation in the Shipyards



Pneumatic Tools

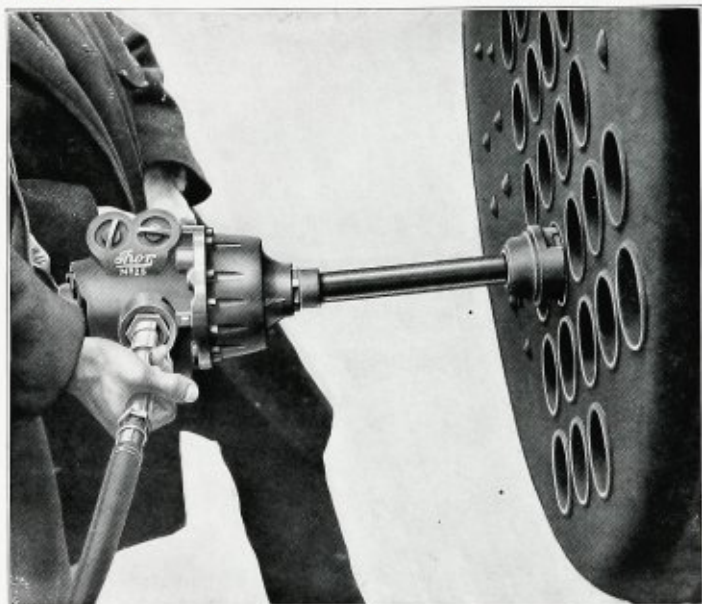


No. 25 Reversible Compound Piston Air Drill, Tapping Stay-Bolt Holes, and Chipping and Calking Hammers on Locomotive Work

Particularly Adapted for Railroad Use

Guaranteed
30% more Efficient than
any other make

Thor Reversible Piston Air Drills



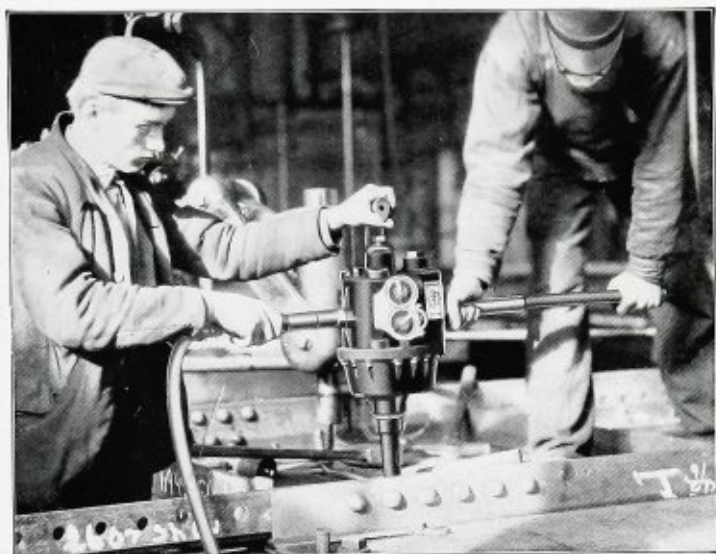
No. 25 Reversible Compound Drill, Rolling 4-Inch Flues



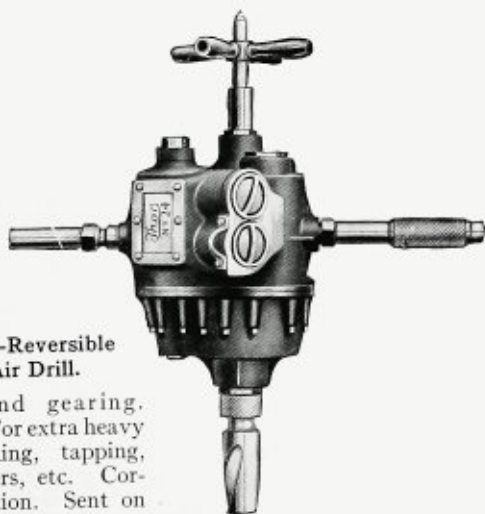
No. 25 Reversible Piston Air Drill

Compound gearing. Slow speed. For extra heavy drilling, reaming, tapping, boring cylinders, rolling flues 4 inches diameter, etc. Most powerful air machine made. Sent on trial at our expense.

Thor Non-Reversible Piston Air Drills



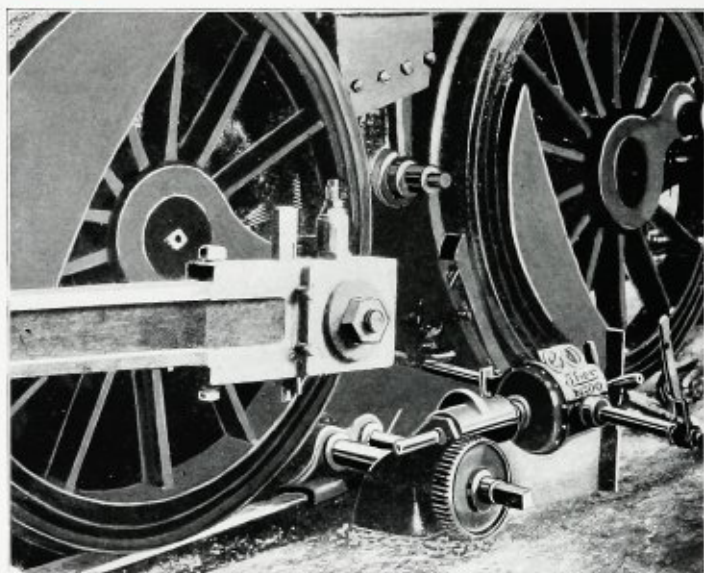
No. 24 Non-Reversible Piston Air Drill Extra Heavy Reaming 1-Inch Holes on Bridge Work



No. 24 Non-Reversible
Piston Air Drill.

Compound gearing.
Slow speed. For extra heavy
drilling, reaming, tapping,
boring cylinders, etc. Cor-
liss valve motion. Sent on
trial at our expense.

Thor Reversible Piston Air Drills



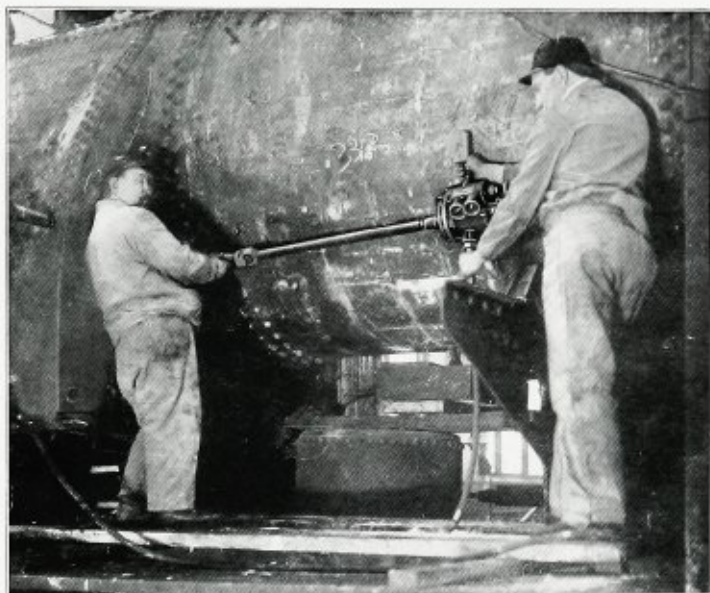
No. 00 Reversible Drill Setting Valves on Locomotive



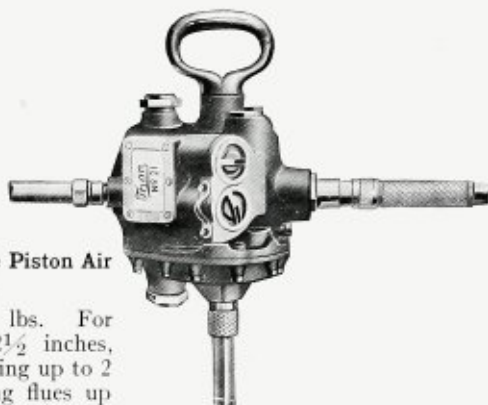
No. 00 Reversible Piston Air Drill

Weight, 69 lbs. For drilling up to 3 inches diameter, tapping, and reaming up to $2\frac{1}{2}$ inches in diameter, rolling 4 inch flues, valve setting, etc. Easily operated. Reversible at full speed.

Thor Reversible Piston Air Drills



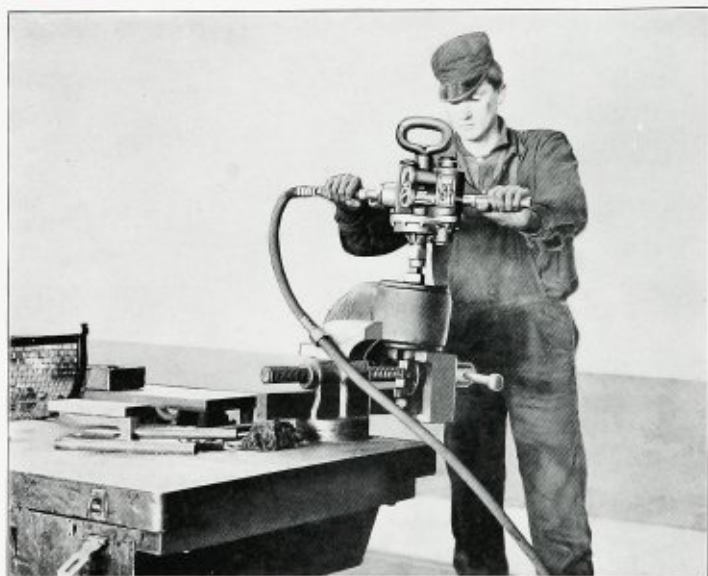
No. 21 Reversible Drill Putting in Flexible Stay Bolts



No. 21 Reversible Piston Air Drill

Weight, 55 lbs. For drilling up to $2\frac{1}{2}$ inches, reaming and tapping up to 2 inches, and rolling flues up to 3 inches in diameter. Efficient and durable. No delicate mechanism.

Thor Reversible Piston Air Drills



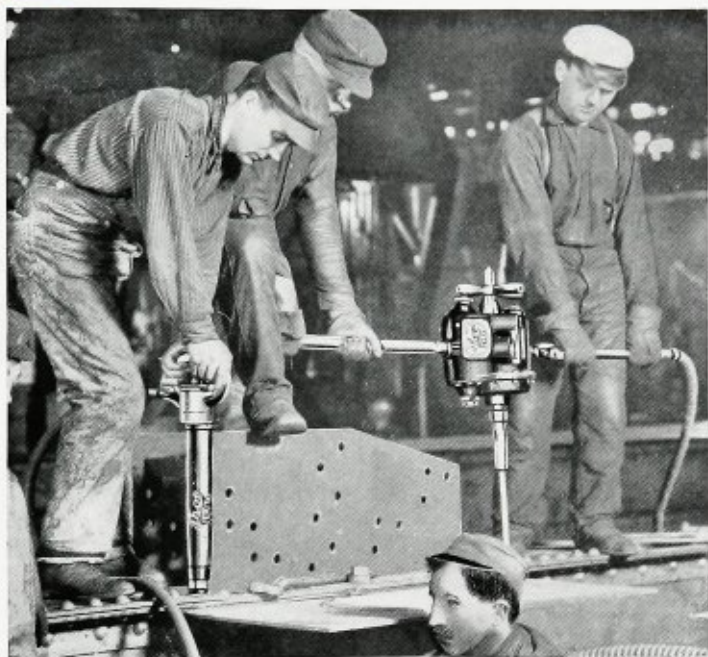
No. 22 Reversible Drill Grinding Throttle Joints



No. 22 Reversible Air Drill

Weight, 32 lbs. For drilling up to $1\frac{1}{4}$ inches, reaming and tapping up to 1 inch, and rolling flues up to $2\frac{1}{2}$ inches in diameter. Discard your obsolete and unsatisfactory air tools. Adopt the improved and economical THOR air tools.

Thor Non-Reversible Piston Air Drills



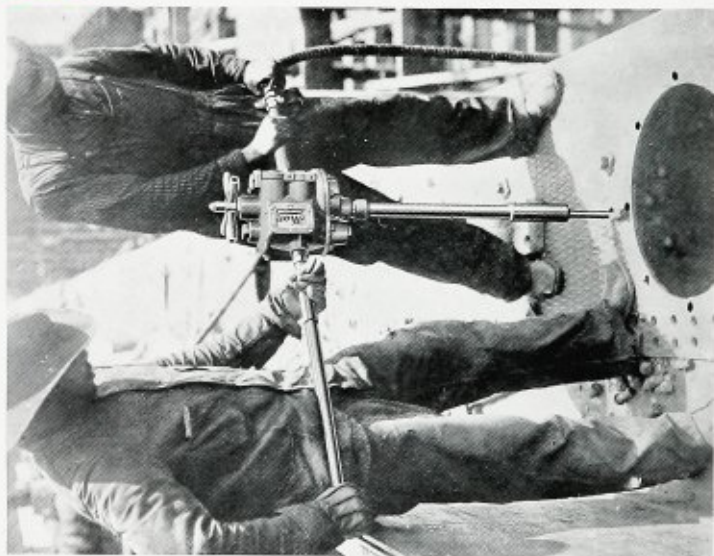
No. 0 Drill Reaming $1\frac{1}{4}$ -Inch Holes,
and No. 90 Long-Stroke Riveting
Hammer Driving $1\frac{1}{4}$ -Inch Rivets
in Steel Bridge Work

No. 0 Non-Reversible Piston Air Drill

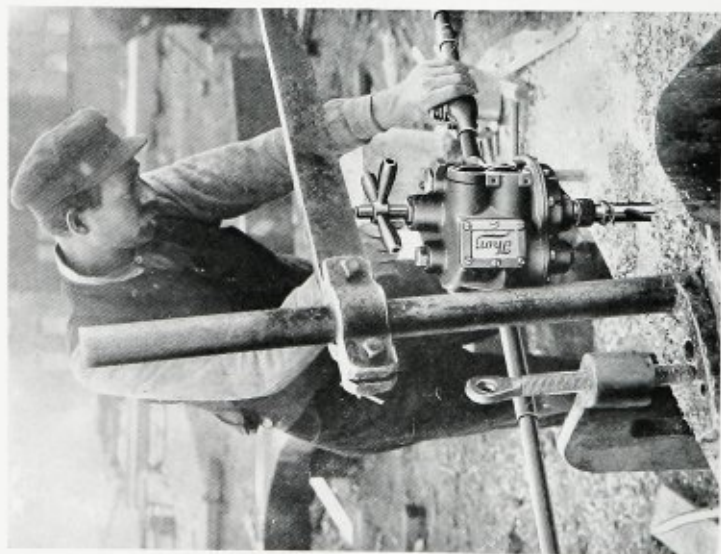
Weight, 62 lbs. For drilling up to 3 inches in diameter, and reaming and tapping up to $2\frac{1}{2}$ inches in diameter. Very economical in use of air. Sent on trial at our expense.



Thor Non-Reversible Piston Air Drills

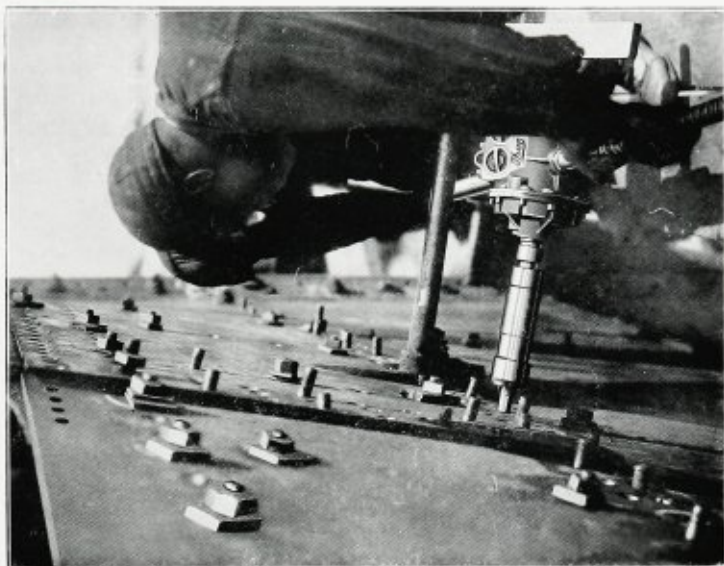


No. 1 Drill Reaming on Deck of Ship

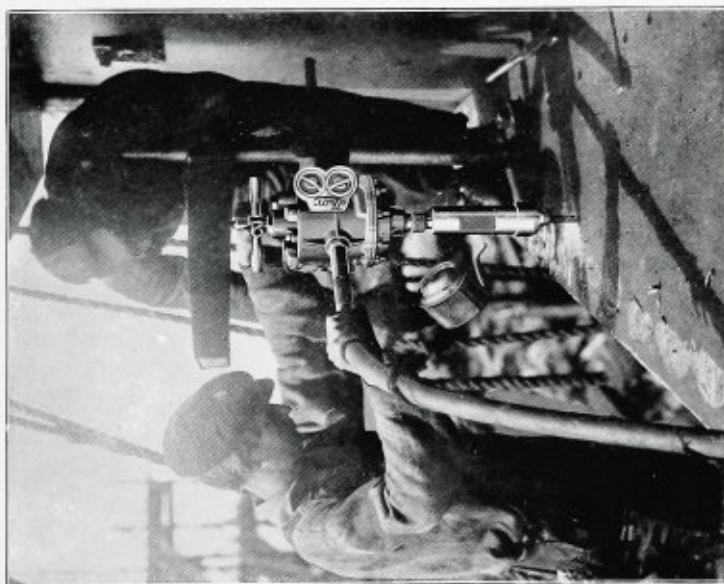


Drilling Wrought Steel Stern Frame with No. 1 Drill

Thor Non-Reversible Piston Air Drills



Drilling on Side of Ship 50 Feet above Ground with No. 1 Drill

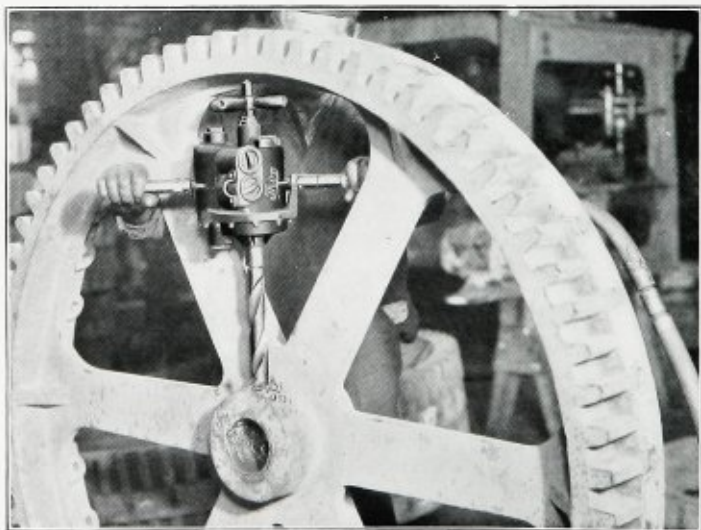


Drilling Nickel Steel on Ship Work with No. 2 Drill

Thor Non-Reversible Piston Air Drills

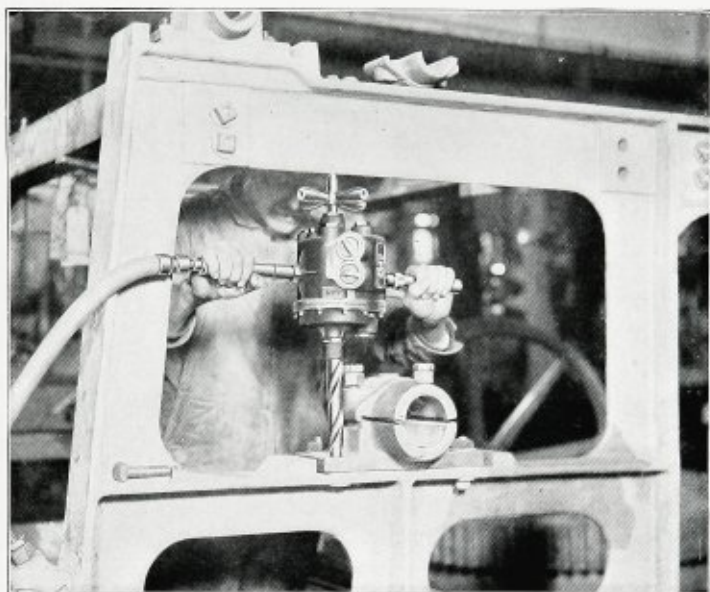


No. 1 Drill Reaming 1½-Inch Rigging Block Holes on Ship Work

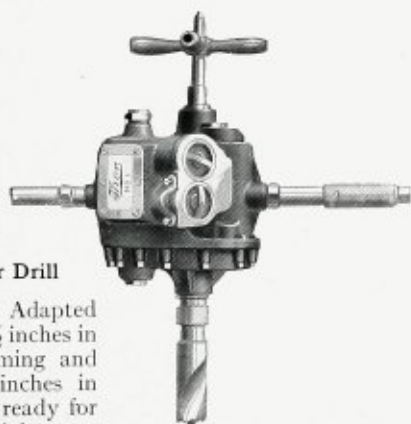


No. 2 Piston Air Drill Drilling 1-Inch Oil Hole 3½ Inches Deep in Cast-Steel Gear Wheel

Thor Non-Reversible Piston Air Drills



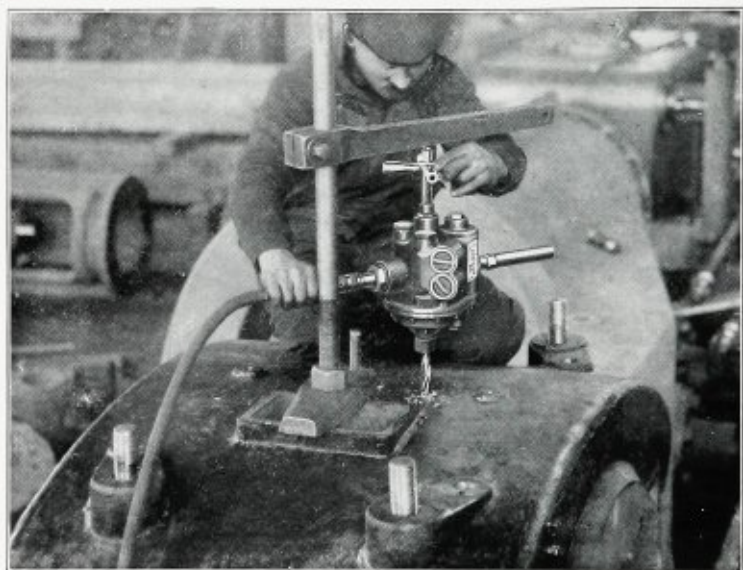
No. 1 Non-Reversible Piston Air Drill Drilling Special Mining Machinery



No. 1 Piston Air Drill

Weight, 45 lbs. Adapted to drilling up to $2\frac{1}{2}$ inches in diameter, and reaming and tapping up to 2 inches in diameter. Always ready for service. Sent on trial at our expense.

Thor Non-Reversible Piston Air Drills



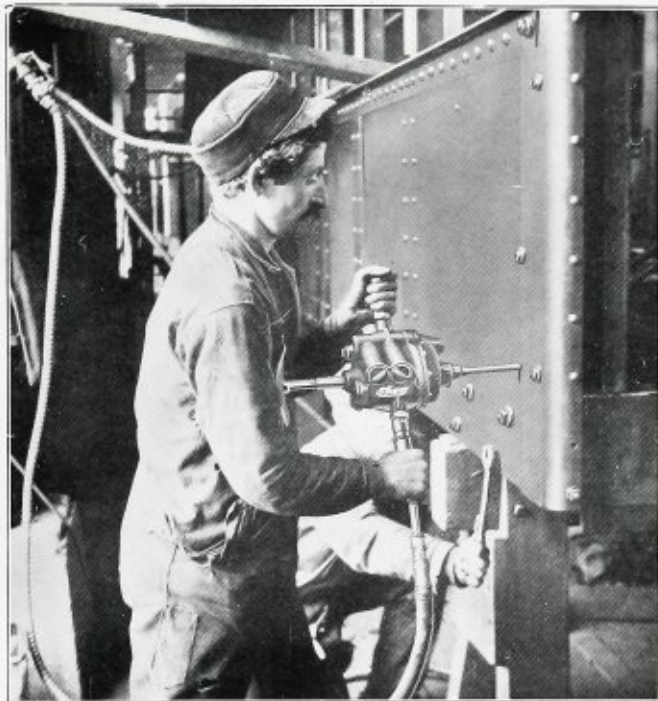
No. 2 Drill Drilling 1¼-Inch Stud Holes



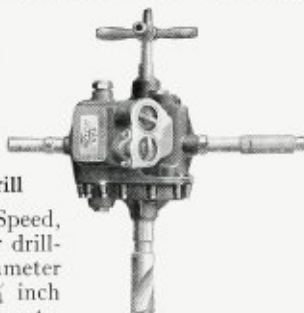
No. 2 Piston Air Drill

Weight, 30 lbs. Designed for drilling up to 1¼ inches in diameter, and reaming and tapping up to 7/8 inch in diameter. All parts interchangeable. Sent on trial at our expense.

Thor Non-Reversible Piston Air Drills



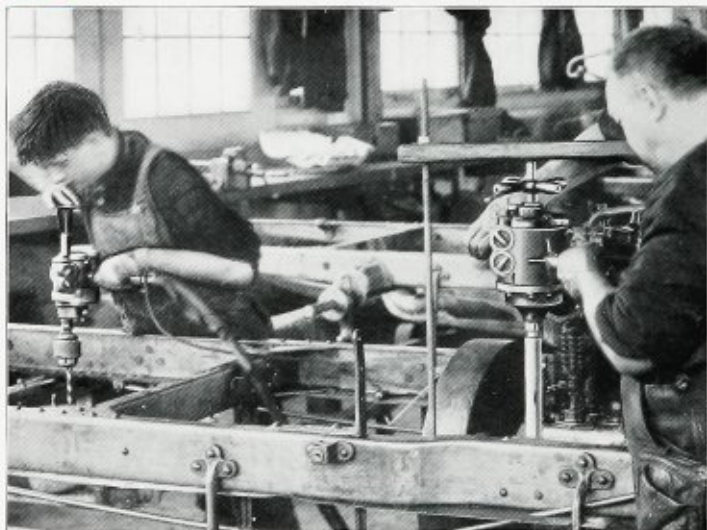
No. 4 Drill Reaming $\frac{3}{4}$ -Inch Holes on Steel Passenger Car Work



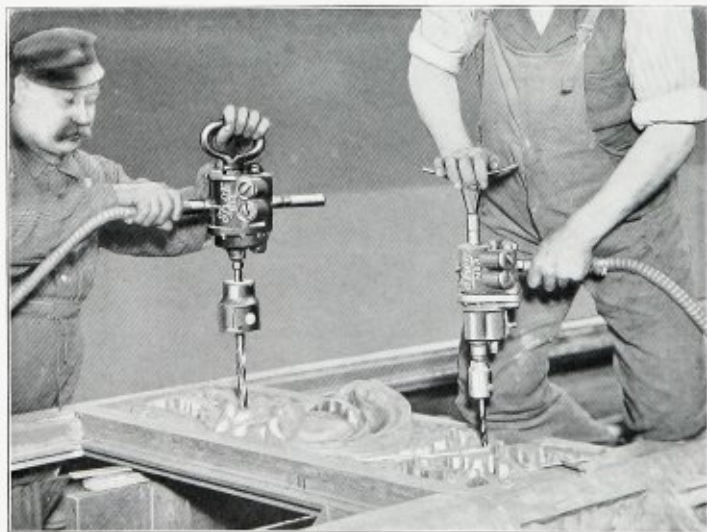
No. 4 Piston Air Drill

Weight, 16 lbs. Speed, 500 rev. per min. For drilling up to $\frac{7}{8}$ inch diameter and reaming up to $\frac{3}{4}$ inch diameter. Easy to operate. Their simplicity of construction appeals to all mechanics. Sent on approval.

Thor Non-Reversible Piston Air Drills

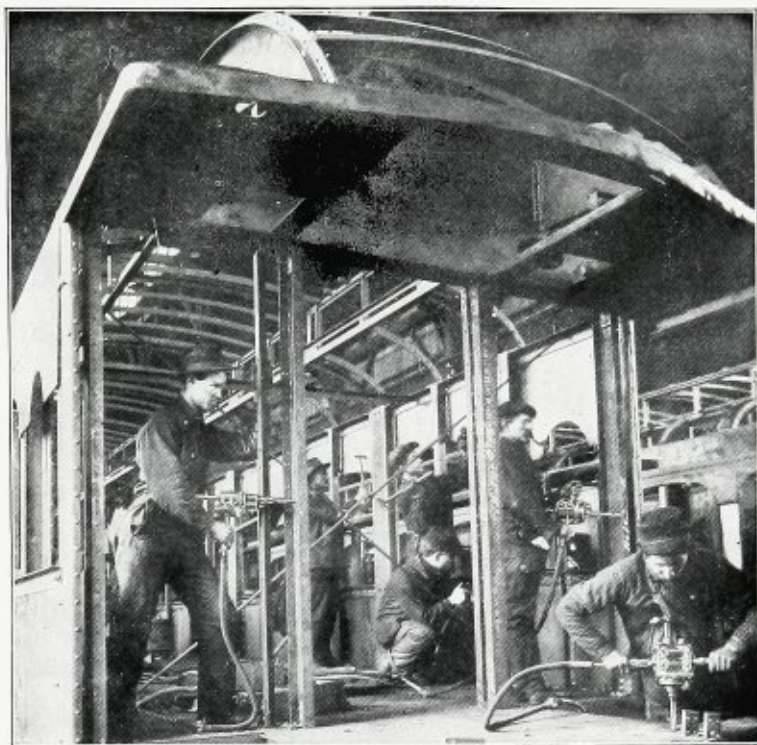


Nos. 3 and 4 Drills Drilling $\frac{3}{16}$ and Reaming $\frac{3}{4}$ Inch on Automobile Frames



Nos. 3 and 4 Piston Air Drills Drilling in Architectural Iron Work

Thor Non-Reversible Piston Air Drills



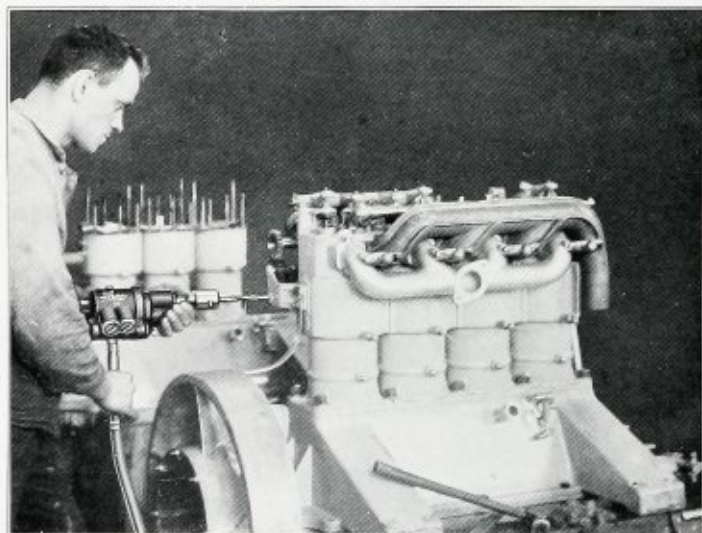
Nos. 3 and 4 Piston Air Drills Drilling and Reaming on Steel Passenger Car Work

No. 3 Piston Air Drill

Weight, 10 lbs. Two speeds—fast speed (1500 rev. per min.) for light drilling, and slow speed (750 rev. per min.) for medium drilling up to $\frac{5}{16}$ inch in diameter. Furnished with breast-plate, screw-feed, Standard No. 0 chuck, grip-handle and No. 1 Morse taper. Modern drills used on modern passenger equipment. Sent on approval.



Thor Non-Reversible Piston Air Drills



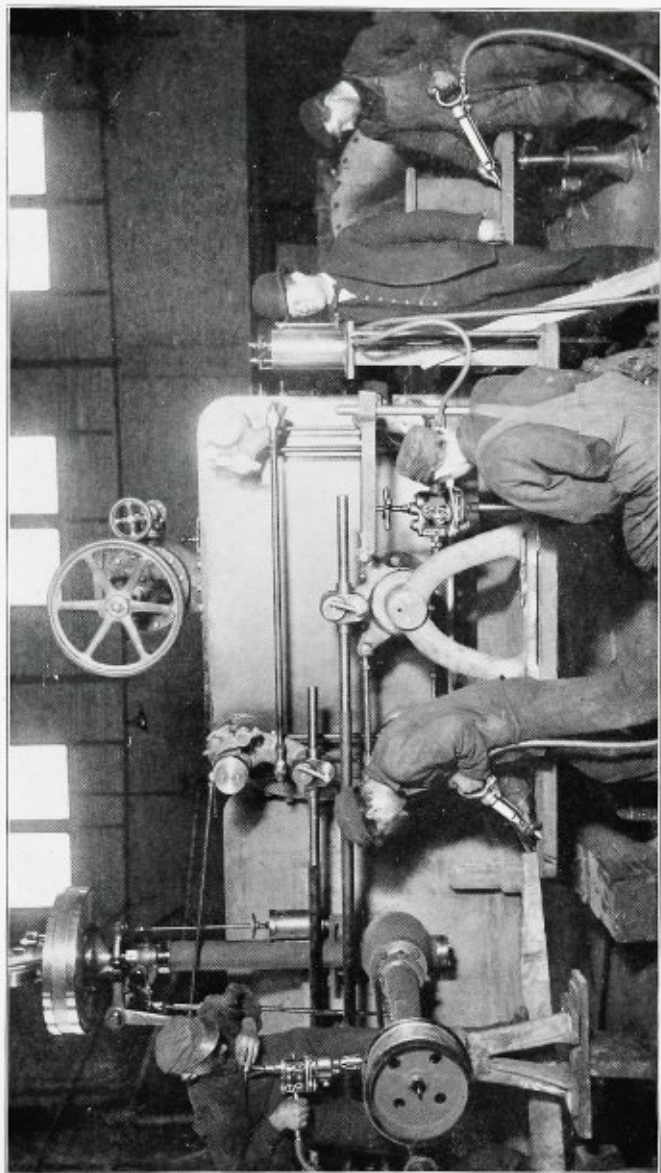
No. 10 Drill on Automobile Engine Work



No. 10 Piston Air Drill

Weight, 10 lbs. One speed, 1500 rev. per min. Furnished with breast-plate, screw feed and Standard No. 0 chuck. Unexcelled for all classes of drilling in metal up to $\frac{1}{2}$ inch in diameter. Used extensively by railroads for drilling safety holes in stay-bolts, and by automobile builders and machine shops for light drilling. Corliss valve motion. Sent on approval.

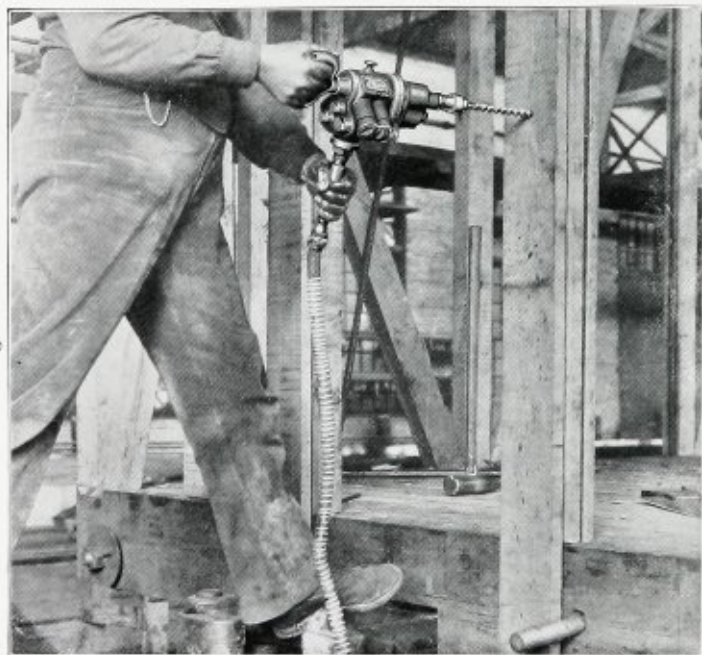
Thor Non-Reversible Piston Air Drills



Nos. 2 and 10 Piston Air Drills and Nos. 2 and 3 Pneumatic Chipping Hammers Drilling and Chipping on Corliss Engine

Thor Wood-Boring Machines

Reversible



No. 6 Reversible Wood-Boring Machine, Boring 1-Inch Diameter Holes in Car End Posts



No. 6 Reversible Wood-Boring Machine

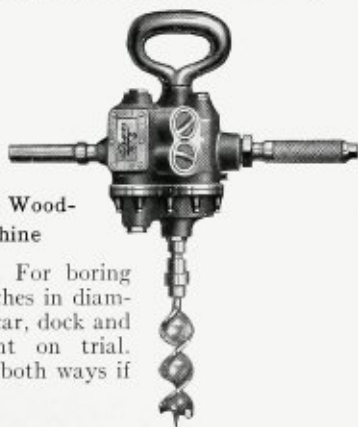
Weight, 10 lbs. Will bore into wood up to 1 inch diameter. Has two speeds, fast (1500 rev. per min.) for light work, and slow (750 rev. per min.) for medium work up to its capacity. Reversed instantly while running at full speed. The only reversible boring machine of its size made.

Thor Wood-Boring Machines

Reversible



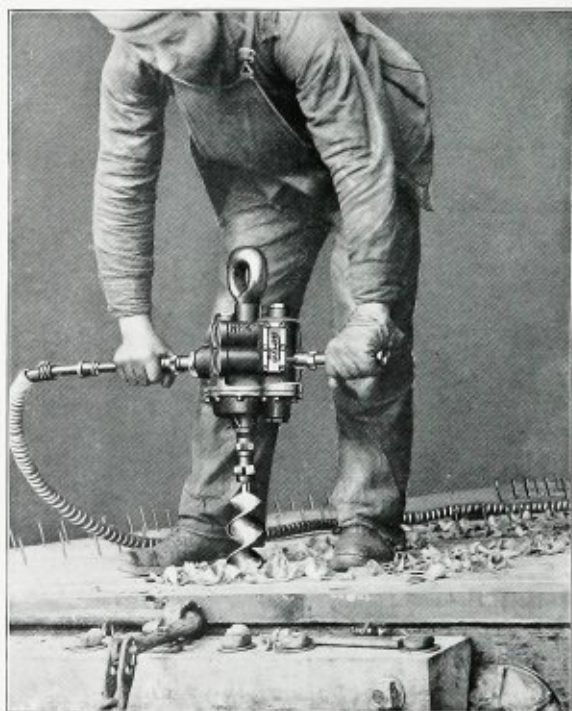
No. 5 Wood-Boring Machine Boring 2-Inch Hole through 12-Inch Timber



No. 5 Reversible Wood-Boring Machine

Weight, 15 lbs. For boring into wood up to 2 inches in diameter. Invaluable for car, dock and shipyard work. Sent on trial. Express charges paid both ways if not satisfactory.

Thor Wood-Boring Machines
Reversible



No. 14 Reversible Wood-Boring Machine Boring Holes for Car Floor Washers 3 1/4 inches in Diameter



No. 14 Reversible Wood-Boring Machine

Weight, 30 lbs. For boring in wood up to 4 inches in diameter. Unexcelled for all classes of heavy wood boring.

Thor Pneumatic Grinding Machine



No. 7 Grinding Machine Grinding Channel Ends on Steel Passenger Car

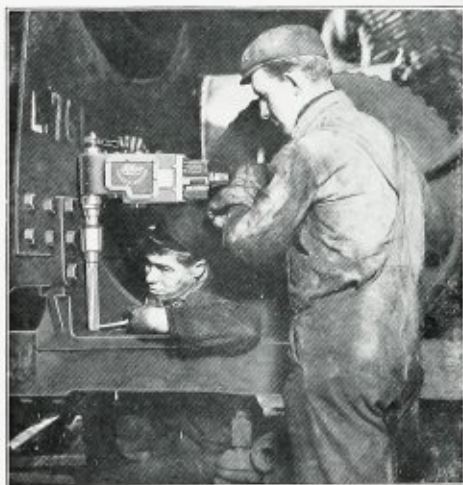


No. 7 Portable Pneumatic Grinding Machine

Weight, 20 lbs. Adapted for grinding castings, polishing, buffing, etc. Easily controlled. A great time and labor-saver. Speed, 3000 rev. per min. The only successful air grinding machine yet produced. Sent on trial.

Thor

Close-Quarter Piston Air Drills



No. 9 Close-Quarter Piston Air Drill in Operation

The most compact, durable and efficient corner drill made. Designed especially for use in close quarters, where the ordinary drill cannot be operated.

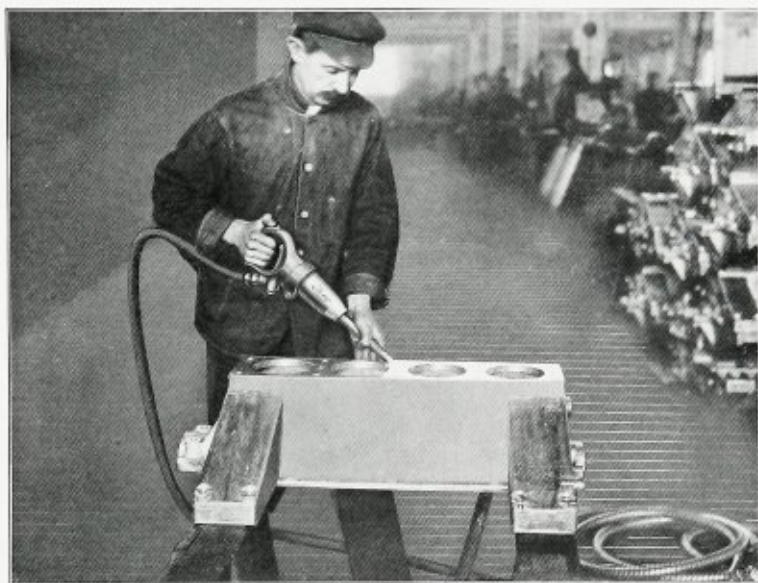
For complete specifications see page nine.



THOR Air Tools are often Imitated but never Equaled

Thor

Pneumatic Chipping Hammers



No. 1 Pneumatic Hammer Chipping Casting



No. 1 Pneumatic Hammer

Weight, 8 lbs. Suitable for very light chipping and scaling. Use THOR Hammers to secure best results. Always reliable.

Thor

Pneumatic Chipping, Calking and Flue Beading Hammers



No. 2 Pneumatic Hammer Calking Mud Ring



Weight 9 lbs. Adapted for medium chipping, calking and beading flues. Equipped with duplex valves. Sent on trial at our expense.

Thor

Pneumatic Chipping and Calking Hammers

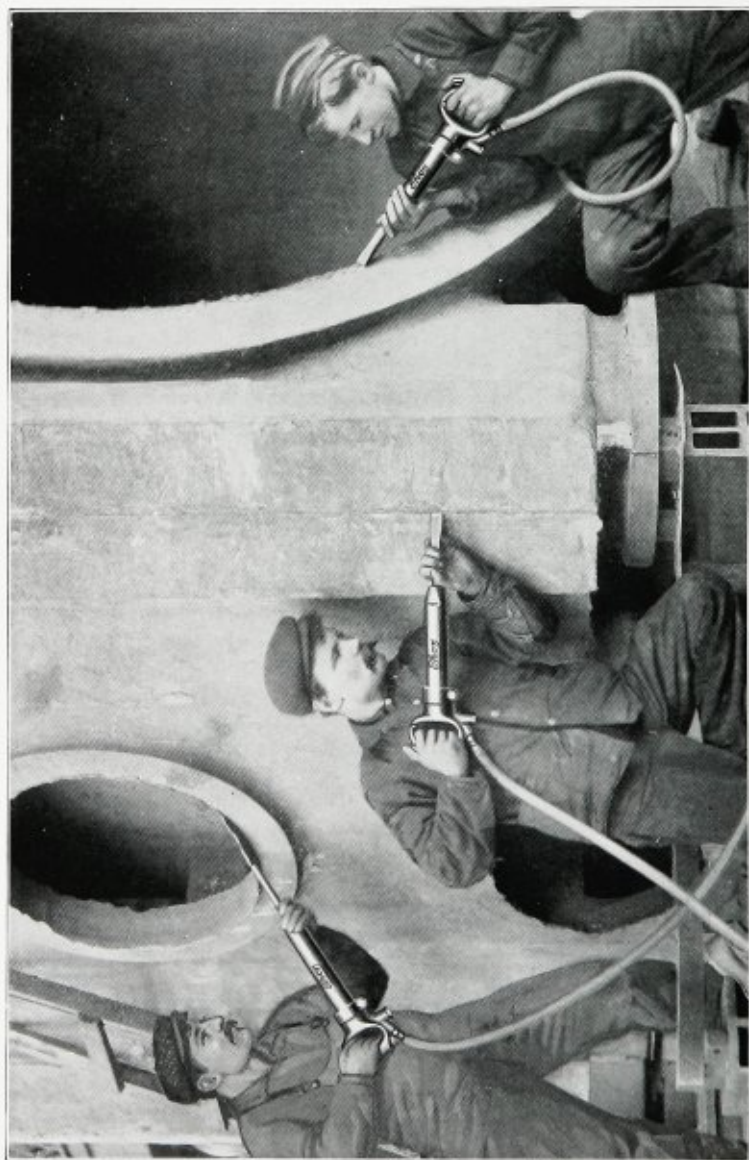


No. 3 Hammer Chipping on 10-Ton Fly-Wheel Casting



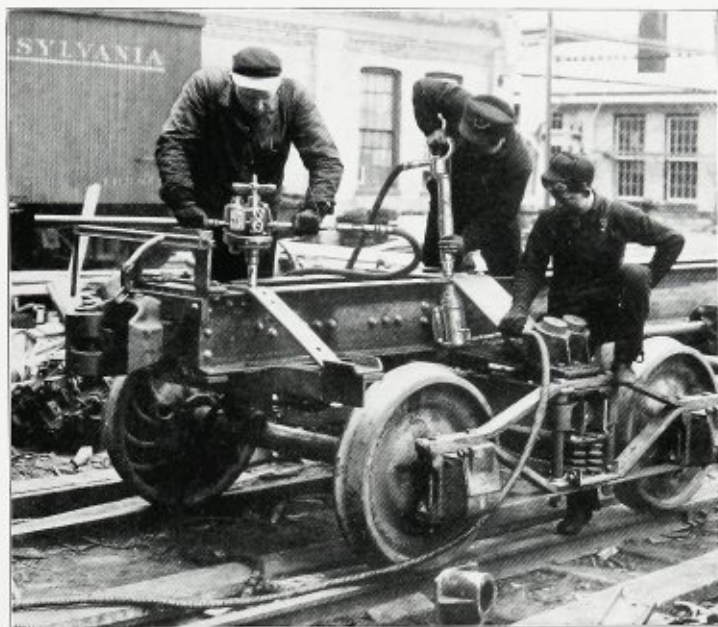
Weight, 10 lbs. Economical in the use of air. Perfect control. Suitable for general chipping and calking.

Thor Pneumatic Chipping and Calking
Hammers



Nos. 3 and 4 Hammers Chipping Cylinder Casting

Thor One-Piece Long-Stroke Riveting Hammers



No. 60 Long-Stroke Riveting Hammer Driving $\frac{3}{4}$ -Inch Rivets, and Piston Air Drill No. 2 Reaming $\frac{3}{4}$ -Inch Holes in Dump Cars

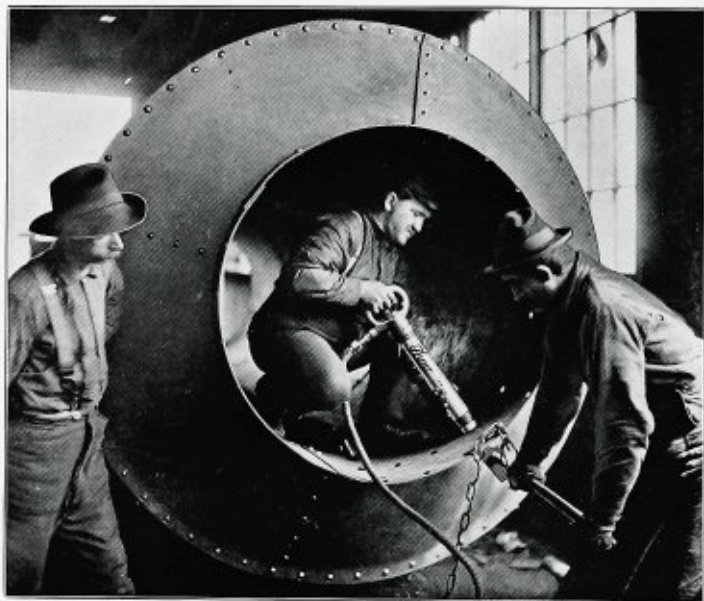


No. 60 One-Piece Long-Stroke Hammer

Weight, 17 lbs. For driving rivets up to $\frac{3}{4}$ inch. Made of one solid piece of drop forging. Sent on trial at our expense.

Thor

One-Piece Riveting Hammers



No. 90 One-Piece Riveting Hammer Driving 1-Inch Rivets in Cement Mixer

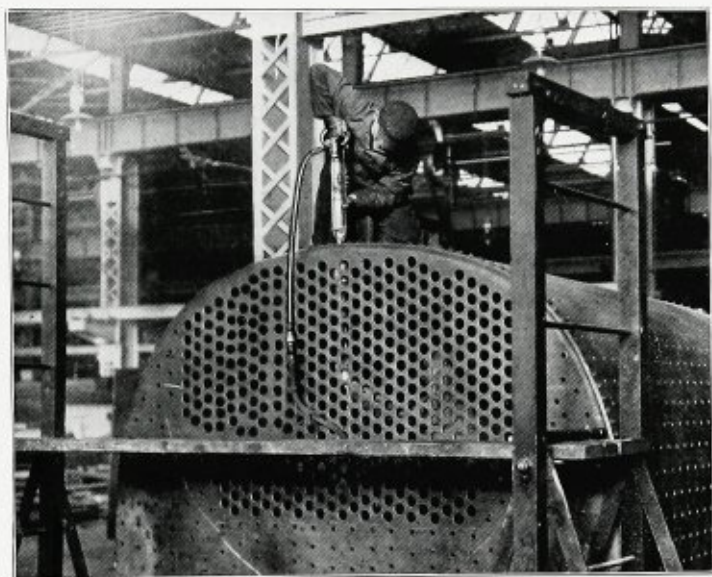


No. 90 One-Piece Long-Stroke Riveting Hammer. Weight, 21 Lbs. Suitable for driving Rivets up to $1\frac{1}{4}$ -Inch in Diameter

Most Powerful and Efficient Riveting Hammer yet Produced

Thor

One-Piece Riveting Hammers



No. 90-S One-Piece Long-Stroke Hammer Driving 1 1/4-Inch Rivets on Boiler Work

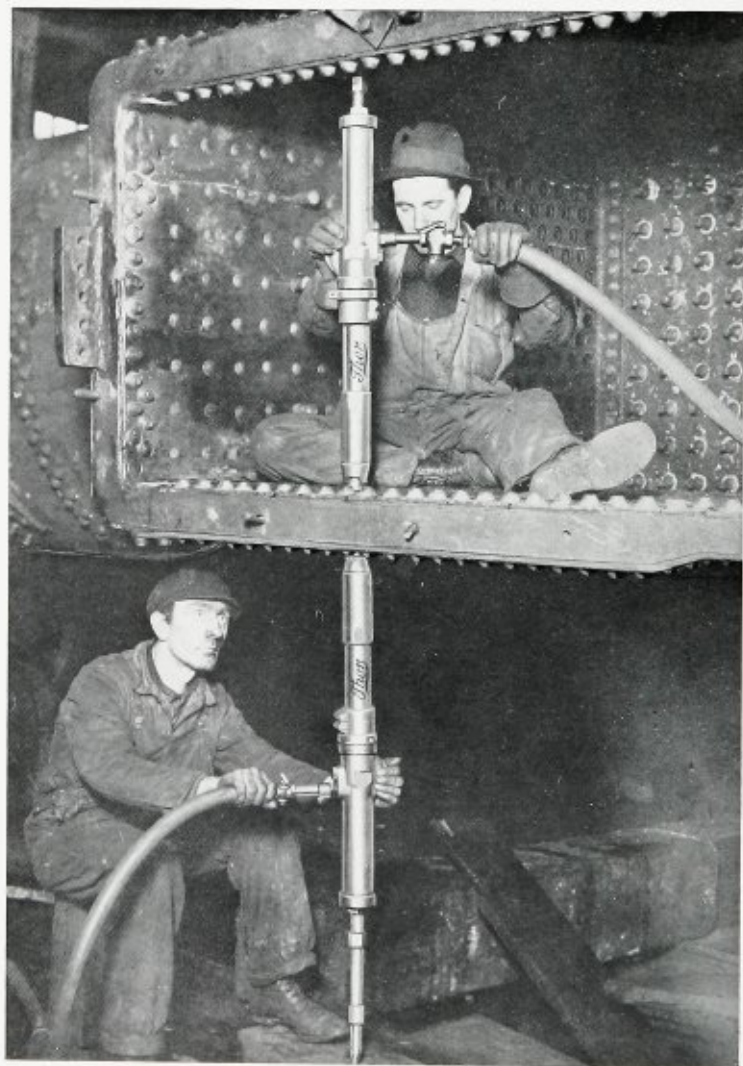


No. 90-S One-Piece Long-Stroke Riveting Hammer

Weight, 21 lbs. Capacity 1 1/4-inch rivets. For use where an extremely powerful hammer is required. Very powerful.

Thor

Pneumatic Stay-Bolt Drivers



Driving Stay-Bolts in Locomotive Fire Box

REPAIR PARTS *for* *Thor* AIR TOOLS

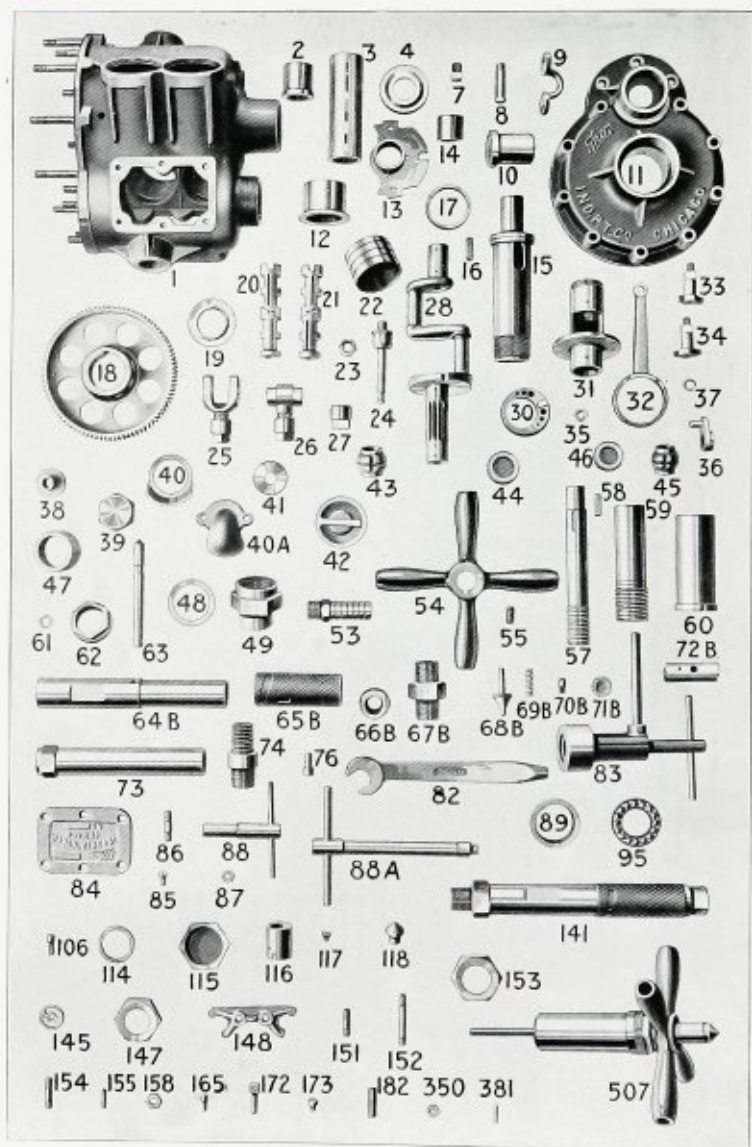
Instructions *for* Ordering

Specify Symbol Number as well as name of part wanted. Always give the Size and Serial Number of the individual tool for which parts are ordered. This information is necessary to insure shipment of correct parts. While the parts for THOR Tools are interchangeable between tools of the same style, improvements made from time to time have necessitated a change in the dimensions and design of some parts. The Serial Number will be found on the machine, and if furnished with the order will save unnecessary correspondence and delay.

When returning tools for repairs consign same to

Independent Pneumatic Tool Co.
Aurora, Illinois

Thor Non-Reversible Piston Air Drills



Parts for Non-Reversible Piston Air Drills Nos. 0, 1, 2 and 4

Thor Non-Reversible Piston Air Drills

List of Parts—Nos. 0, 1, 2 and 4

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder, complete for Nos. 0 and 1	62	1	Nut for Feed Sleeve
		Drills, fitted with Nos. 2, 3, 7, 8, 19,	63	1	Ejecting Pin
		86, 151, 152 and 155	64B	1	Live Air Handle Stem
1	1	Cylinder complete for Nos. 2 and 4	65B	1	Live Air Handle Sleeve
		Drills, fitted with parts 2, 3, 7, 8, 19,	66B	1	Live Air Handle Cap
		86, 151, 152, 154 and 155	67B	1	Live Air Handle Plug
2	1	Spindle Bushing	68B	1	Live Air Handle Valve
3	2	Valve Bushing	69B	1	Live Air Handle Valve Spring
4	1	Lower Ball Race	70B	1	Live Air Handle Screw
5	1	Oil Tube (not shown on parts plate)	71B	1	Live Air Handle Strainer
6	1	Oil Tube Plug (not shown on parts plate)	72B	1	Live Air Handle Valve Lift
7	1	Oil Tube Screw	141	1	Live Air Handle, complete
8	1	Vent Tube	73	1	Dead Handle Stem
9	1	Suspension Hook	74	1	Dead Handle Plug
10	1	Upper Crank Bushing for No. 0 Drill only	76	2	Screws for Suspension Hook
			82	1	Toggle Wrench
11	1	Gear Case with Nos. 12, 155 and 175	83	1	Piston Wrench
12	1	Gear Case Bushing	84	2	Crank Chamber Plate
13	1	Center Plate with No. 14	85	12	Crank Chamber Plate Screw
14	1	Center Plate Bushing	86	3	Gear Case Studs (short)
15	1	Spindle with Nos. 4 and 16	87	15	Gear Case Stud Nuts
16	1	Spindle Key	88	1	Socket Wrench for Gear Case Stud Nuts and Clamp Guide Stud Nuts
17	1	Collar for Spindle	88A	1	Valve Lapping Rod
18	1	Gear Wheel	89	1	Packing for Spindle
19	1	Upper Ball Race	95	1	Ball Retainer, complete, with balls
20	1	Right Valve	106	12	Gear Case Screw for No. 4 Drill only
21	1	Left Valve	114	1	Check Nut for No. 0 Drill Center Plate only
22	4	Piston with No. 165	115	2	Crank Cap for No. 0 Drill only
22A	4	Piston complete with 23, 24 and 165	116	1	Crank Sleeve for No. 0 Drill only with No. 182
23	4	Connecting Rod Nut	117	1	Outer Feed Sleeve Key
24	4	Connecting Rod and Socket	118	1	Feed Screw Center
25	2	Outside Toggle with No. 27	181	15	$\frac{1}{8}$ -in. Steel Balls for No. 1 Drill (not on parts plate)
26	2	Inside Toggle with No. 27	181	14	$\frac{3}{8}$ -in. Steel Balls for No. 0 Drill (not on parts plate)
27	4	Toggle Nut	181	13	$\frac{1}{4}$ -in. Steel Balls for No. 2 Drill (not on parts plate)
28	1	Crank	181	13	$\frac{1}{4}$ -in. Steel Balls for No. 4 Drill (not on parts plate)
28A	1	Crank (Old Style) (not on parts plate)	145	1	Live Air Handle Valve Guide
29	1	Counterweight and Plate for Old Style Crank (not on parts plate)	146	2	Crank Chamber Gasket (not shown on parts plate)
30	1	Eccentric and Driver	147	1	Upper Crank Cap Nut
31	1	Center Plate for No. 0 Drill only	148	1	Valve Guide Clamp (not used on No. 1 Drill)
32	2	Eccentric Strap	151	4	Exhaust Deflector Stud
33	1	Right Valve Stud	152	9	Gear Case Stud (long) for Nos. 1, 2 and 4
34	1	Left Valve Stud	153	12	Gear Case Stud (long) for No. 0
35	2	Valve Stud Nut	154	1	Lower Crank Cap Nut
36	2	Valve Lever	155	2	Valve Guide Clamp Stud (not used on No. 1 Drill)
37	2	Valve Stud Washer	155	2	Key for Upper and Lower Crank Bushings
38	2	Valve Stud Guide	158	2	Nut for Valve Guide Clamp Stud (not used on No. 1 Drill)
39	2	Exhaust Cap	165	4	Piston Pin
40	2	Exhaust Cap Deflector (Old Style)	172	1	Eccentric Driver Pin
40A	2	Exhaust Deflector (New Style)	173	2	Center Plate Key
41	2	End Plate for Valve	182	1	Key for Crank Sleeve (for No. 0 Drill only)
42	4	Cylinder Head	350	4	Nut for Exhaust Deflector Stud
43	1	Lower Cap Bushing	381	4	Rivet for Outside Toggle
44	1	Lower Cap	507	1	Feed Screw complete with Nos. 54, 55, 57, 59, 60, 61, 62 and 63
45	1	Upper Cap Bushing			
46	1	Upper Cap			
47	1	Protection Nut			
48	1	Stuffing Box			
49	1	Chuck			
53	1	Hose Nipple			
54	1	Feed Handle			
55	1	Set Screw for Feed Handle			
57	1	Feed Screw with No. 58 and No. 118			
58	1	Feed Screw Key			
59	1	Inner Feed Sleeve			
60	1	Outside Feed Sleeve with No. 117			
61	1	Ejecting Pin Retainer			

Always Give Size and Serial Number of Drill and Symbol Number of Part



Reversible Piston Air Drills



Parts for Reversible Piston Air Drills Nos. 00, 21, 22, 14 and 5

INDEPENDENT PNEUMATIC TOOL COMPANY

List of Parts—Nos. 00, 21, 22, 14 and 5

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder, complete for Nos. 00 and 21 Drills, fitted with Nos. 2, 3, 8, 19, 86, 152 and 155	48	1	Stuffing Box	108	1	Crank Pinion Key for Nos. 14 and 5 Wood-Boring Machines
1	1	Cylinder, complete for Nos. 22, 14, and 5 Drills, fitted with parts 2, 3, 8, 19, 86, 152, 154, 155	50	1	Grip Handle with Nos. 188 and 189	109	1	Taper Shank Chuck for No. 5 Wood-Boring Machine with No. 110
2	1	Spindle Bushing	51	1	Ejecting Pin for Grip Handle with No. 190	110	1	Screw for Chuck for Nos. 5 and 14 Wood-Boring Machines
3	2	Valve Bushing	52	1	Ejecting Screw (not on parts plate)	111	1	Taper Pin for Nos. 5 and 14 Wood-Boring Machines
4	1	Lower Ball Race	53	1	Hose Nipple	112	1	Taper Shank Chuck Retainer, No. 14 Wood-Boring Machine
5	1	Oil Tube (not on parts plate)	54	1	Feed Handle	113	1	Taper Shank Chuck for No. 14 Wood-Boring Machine
7	1	Oil Tube Screw	55	1	Feed Handle Set Screw	114	1	Check Nut for Center Plate for No. 00 Drill
8	1	Vent Tube	57	1	Feed Screw with No. 58 and No. 118	115	2	Crank Cap for No. 00 Drill only
9	1	Suspension Hook	58	1	Feed Screw Key	116	1	Crank Sleeve for No. 00 Drill only with No. 182
10	1	Upper Crank Bushing for No. 00 Drill	59	1	Inner Sleeve for Feed Screw	117	1	Outer Feed Sleeve Key
11	1	Gear Case with Nos. 12, 155 and 173	60	1	Outside Sleeve for Feed Screw with No. 117	118	1	Feed Screw Center
12	1	Gear Case Bushing	61	1	Ejecting Pin Retainer for Feed Screw	119	1	Dowel Pin Screw for Live Air Handle
13	1	Center Plate with No. 14 (See No. 31)	62	1	Feed Sleeve Nut	120	1	Chuck Wrench for Nos. 5 and 14 Wood-Boring Machines
14	1	Center Plate Bushing	63	1	Ejecting Pin for Feed Screw	142	1	Live Air Handle, complete
15	1	Spindle with Nos. 4 and 16	64B	1	Live Air Handle Stem	146	2	Crank Chamber Gasket (not shown on parts plate)
16	1	Spindle Key	65C	1	Live Air Handle Sleeve	147	1	Upper Crank Cap Nut
17	1	Collar for Spindle	66B	1	Live Air Handle Cap	148	1	Valve Guide "Clamp" (not used in No. 21 Drill)
18	1	Gear Wheel	68B	1	Live Air Handle Valve	150	1	Copper Gasket for Live Air Handle Plate
19	1	Upper Ball Race	69B	1	Live Air Handle Valve Stem	152	9	Gear Case Stud (long) for Nos. 21, 22, 5 and 14
20	1	Right Valve	70C	1	Live Air Handle Screw	152	12	Gear Case Stud (long) for No. 00
21	1	Left Valve	71B	1	Live Air Handle Strainer	153	1	Lower Crank Cap Nut
22	4	Piston with No. 165	72B	1	Live Air Handle Operating Plug	154	2	Stud for Valve Guide Clamp (not used in No. 21 Drill)
22A	4	Piston, complete with Nos. 23, 24 and 165 (not on parts plate)	73	1	Dead Handle Stem	155	2	Key for Upper and Lower Crank Bushing
23	4	Connecting Rod Nut	74	1	Dead Handle Plug	158	2	Nut for Valve Guide Clamp (not used in No. 21 Drill)
24	4	Connecting Rod and Socket	75B	2	Live Air Handle Plate Screw	165	4	Piston Pin
25	2	Outside Toggle with No. 27	76	2	Screw for Suspension Hook	172	1	Eccentric Driver Pin
26	2	Inside Toggle with No. 27	77B	1	Live Air Handle Valve Plate	173	2	Center Plate Key
27	4	Toggle Nut	78B	1	Live Air Handle Adjusting Screw	181	14	3/8-inch Steel Balls for No. 00 Drill (not shown on parts plate)
28	1	Crank	79B	1	Live Air Handle Adjusting Washer	181	14	7/8-inch Steel Balls for No. 21 Drill (not shown on parts plate)
28A	1	Crank, Old Style (not shown on parts plate)	80B	1	Live Air Handle Clamp Nut			
29	1	Counterweight and Plate for Old Style Crank (not shown on parts plate)	81B	1	Live Air Handle Locking Sleeve			
30	1	Eccentric and Driver	82	1	Toggle Wrench			
31	1	Center Plate for No. 00 Drill	83	1	Piston Wrench			
32	2	Eccentric Strap	84	2	Crank Chamber Plate			
33	1	Right Valve Stud	85	12	Crank Chamber Plate Screw			
34	1	Left Valve Stud	86	3	Gear Case Stud (short)			
35	2	Valve Stud Nut	87	15	Gear Case Stud Nuts			
36	2	Valve Stud Lever	88	1	Socket Wrench for Gear Case and Clamp Guide Stud Nuts			
37	2	Valve Stud Washer	88A	1	Valve Lapping Rod			
38	2	Valve Stud Guide	89	1	Packing for Spindle			
39	2	Exhaust Cap	95	1	Ball Retainer, complete, with Balls			
41	2	End Plate for Valve	106	12	Gear Case Screw for No. 5 Wood-Boring Machine			
42	4	Cylinder Head	107	1	Crank Pinion for Nos. 14 and 5 Wood-Boring Machine			
43	1	Lower Cap Bushing (See No. 116)						
44	1	Lower Cap (See No. 115)						
45	1	Upper Cap Bushing (See No. 116)						
46	1	Upper Cap (See No. 115)						
47	1	Protection Nut						

Continued on page 78

Always Give Size and Serial Number of Drill and Symbol Number of Part

INDEPENDENT PNEUMATIC TOOL COMPANY

List of Parts—Nos. 00, 21, 22, 14 and 5—Continued

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
181	14	$\frac{1}{2}$ -inch Steel Balls for Nos. 22 and 14 Drills (not shown on parts plate)	182	1	Key for Crank Sleeve for No. 00 Drill only	381	4	for Grip Handle Rivet for Outside Toggle
181	13	$\frac{1}{4}$ -inch Steel Balls for No. 5 Drill (not shown on parts plate)	188	1	Clamp Nut for Grip Handle	507	1	Feed Screw, complete, with 54, 55, 57, 59, 60, 61, 62, 63
			189	1	Retainer Nut for Grip Handle	521	1	Square Chuck with Morse Taper Shank
			190	1	Ejector Pin Retainer			



Close-Quarter Piston Air Drills

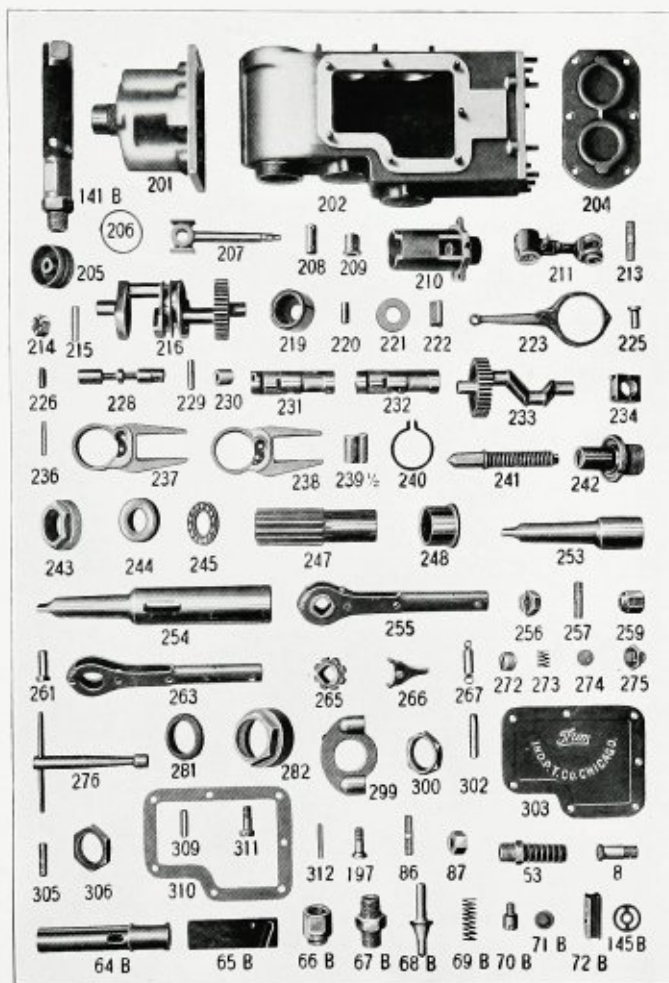
List of Parts—Nos. 8 and 9

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
8	1	Vent Tube	233	1	Lever Crank with 38-tooth Gear
53	1	Hose Nipple	254	2	Lever Crank Block (must be ordered complete)
64B	1	Live Air Handle Stem	256	2	Lever Crank Block Pin
65B	1	Live Air Handle Sleeve	257	1	Ratchet Lever, Upper
66B	1	Live Air Handle Cap	258	1	Ratchet Lever, Lower
67B	1	Live Air Handle Plug	259 $\frac{1}{2}$	2	Ratchet Click
68B	1	Live Air Handle Valve	240	2	Ratchet Click Spring
69B	1	Live Air Handle Spring	241	1	Feed Screw with No. 118
70B	1	Live Air Handle Screw	242	1	Upper Ball Race with Nos. 272, 273 and 274
71B	1	Live Air Handle Strainer	243	1	Upper Ball Race Check Nut
72B	1	Live Air Handle Lift	244	1	Lower Ball Race
86	10	Cylinder Stud	245	1	Ball Retainer, complete
87	19	Cylinder and Cross Head Guide Nuts	247	1	Spindle
88A	1	Lapping Valve Rod (not shown on parts plate)	248	1	Lower Spindle Bushing
118	1	Feed Screw Center (not on parts plate)	253	1	Square Socket No. 3 Taper for No. 8 Drill
141B	1	Live Air Handle, complete	254	1	Drill Socket No. 4 Shank and No. 3 Taper for No. 9 Drill
145B	1	Live Air Handle Valve Guide	255	1	Ratchet Wrench, complete
197	2	Screw for Ratchet Wrench	256	2	Piston Rod Nut
201	1	Cylinder with Nos. 231, 232, 257	257	9	Cross Head Guide Stud
202	1	Crank Case with Nos. 261, 309, 86, 305 and 248	259	13	Nut for Journal Cover (No. 204) and for Side Plate (No. 303)
204	1	Crank Case Journal Cover	261	1	Upper Ball Race Key
205	2	Piston	263	1	Ratchet Wrench Handle
206	4	Piston Ring	265	1	Ratchet Wrench Gear
207	2	Piston Rod and Cross Head (one forging)	266	1	Ratchet Wrench Click
208	2	Cross Head Pin	267	1	Spring for Ratchet Wrench Click complete with tube
209	2	Piston Rod Bushing	272	1	Tension Screw for Feed Screw
210	2	Cross Head Guide with No. 209	273	1	Tension Spring for Feed Screw
211	2	Connecting Rod and Cap (must be ordered complete)	274	1	Tension Block for Feed Screw
213	2	Connecting Rod Stud	275	1	Oil Plug
214	2	Connecting Rod Stud Nut	276	1	Wrench for Cylinder Stud Nut, complete
215	2	Connecting Rod Pin	281	1	Packing for Stuffing Box
216	1	Main Crank	282	1	Stuffing Box
219	4	Crank Journal Roller Case	299	1	Deflector
219A	4	Crank Journal Roller Case with Nos. 220 and 221	300	1	Nut for Deflector
220	36	Crank Journal Roller	302	4	Crank Journal Case Key Rivet
221	4	Crank Journal Roller Retainer	303	1	Side Plate
222	4	Crank Journal Roller Case Key	305	13	Studs for Journal Cover and Side Plate
223	2	Eccentric Strap, complete (must be ordered complete)	306	1	Lock Nut for Upper Ball Race
225	2	Eccentric Strap Pin	309	2	Dowel Pins for Cylinder
226	2	Eccentric Strap Hinge Pin	310	1	Gasket for Side Plate
227 $\frac{1}{2}$	2	Connecting Rod Stud Split Key (not on parts plate)	311	1	Fillister Head Screw for Ratchet Wrench
228	2	Valve, Right or Left	312	1	Rivet for Ratchet Wrench
229	2	Valve Pin	322	14	$\frac{1}{4}$ -inch Steel Balls for Ball Race (not on parts plate)
230	2	Valve Pin Roller			
231	1	Right Valve Bushing			
232	1	Left Valve Bushing			

Always Give Size and Serial Number of Drill and Symbol Number of Part

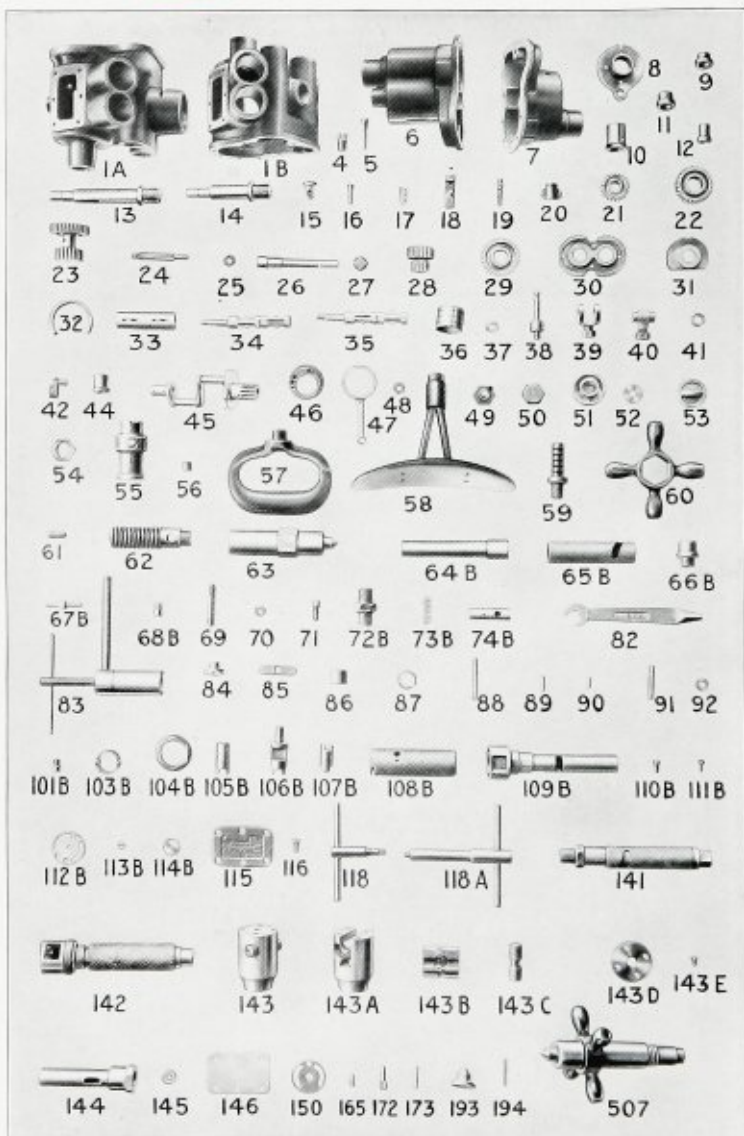


Close-Quarter Piston Air Drills



Parts for Close-Quarter Drills Nos. 8 and 9

Thor Piston Air Drills



Parts for Piston Air Drills Nos. 3, 6, 10 and 23

INDEPENDENT PNEUMATIC TOOL COMPANY

List of Parts—Nos. 3, 6, 10 and 23

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1A	1	Cylinder for No. 6 Drill, with Nos. 4, 5, 33 and 44	36	4	Piston with No. 165	73B	1	Non-Reversible Live Air Handle Spring for Nos. 3, 23 and 10 Drills
1B	1	Cylinder for Nos. 3, 23 and 10 Drills, with Nos. 4, 5, 33 and 44	36A	4	Piston with Nos. 37, 38 and 165 (not on parts plate)	74B	1	Non-Reversible Live Air Handle Valve Lift for Nos. 3, 23 and 10 Drills
2	1	Oil Tube (not shown on parts plate)	37	4	Connecting Rod Nut	82	1	Toggle Wrench
3	1	Oil Tube Plug (not shown on parts plate)	38	4	Connecting Rod and Socket	83	1	Piston Wrench
4	1	Oil Tube Screw	39	2	Outside Toggle with No. 41	84	1	Oil Plug
5	1	Vent Tube	40	2	Inside Toggle with No. 41	85	1	Shifter Plate for Nos. 3 and 6 Drills
6	1	Gear Case for Nos. 3, 23 and 6 Drills with Nos. 10 and 12	41	4	Toggle Nut	86	1	Dividing Collar for Spindle, Nos. 3, 23 and 6 Drills
7	1	Gear Case for No. 10 Drill with No. 10	42	2	Valve Lever	87	1	Spindle Packing
8	1	Center Plate	43	1	Counterweight and Plate for Crank (Old Style) (not on parts plate)	88	1	Key for Shifter Gears for Nos. 3 and 6 Drills
9	1	Upper Spindle Bushing	44	1	Upper Crank Bushing	89	1	Key for Spindle Gears
10	1	Lower Spindle Bushing	45	1	Crank Shaft	90	1	Key for Counter-Shaft Gear to Crank, Nos. 3, 23 and 6 Drills
11	1	Upper Bushing for Counter-Shaft for Nos. 3, 23 and 6 Drills	45A	1	Crank Shaft (Old Style) (not shown on parts plate)	91	1	Taper Pin for Wood Chuck (No. 6 Drill)
12	1	Lower Bushing for Counter-Shaft for Nos. 3, 23 and 6 Drills	46	1	Eccentric and Driver	92	2	Valve Stud Washer
13	1	Spindle for Nos. 3, 23 and 6 Drills	47	2	Eccentric Strap	101B	1	Reversible Live Air Handle Screw for No. 6 Drill
14	1	Spindle for No. 10 Drill	48	2	Valve Stud Nut	102B	1	Reversible Live Air Handle Cap for No. 6 Drill (not on parts plate)
15	1	Lock for Spindle, No. 10 Drill	49	2	Valve Stud Guide	103B	1	Reversible Live Air Handle Locking Sleeve for No. 6 Drill
16	1	Screw for Spindle Lock, No. 10 Drill	50	2	Exhaust Cap for No. 6 Drill only	104B	1	Reversible Live Air Handle Clamp Nut for No. 6 Drill
17	1	Spindle Lock Spring, No. 10 Drill	51	2	Exhaust Cap Deflector for Nos. 3, 23 & 10 Drills	105B	1	Reversible Live Air Handle Operating Plug for No. 6 Drill
18	1	Shifter for Compound Gear, Nos. 3 and 6 Drills	52	2	End Plate for Valve	106B	1	Reversible Live Air Handle Valve for No. 6 Drill
19	1	Screw for Shifter, Nos. 3 and 6 Drills	53	4	Cylinder Head	107B	1	Reversible Live Air Handle Valve Stem for No. 6 Drill
20	1	Thumb Nut for Shifter for Nos. 3 and 6 Drills	54	1	Stuffing Box	108B	1	Reversible Live Air Handle Sleeve for No. 6 Drill
21	1	22-Tooth Spindle Gear and Ball Race	55	1	Chuck for Wood Bit for No. 6 Drill with No. 36	109B	1	Reversible Live Air Handle Stem for No. 6 Drill
22	1	30-Tooth Spindle Gear for Nos. 3, 23 and 6 Drills	56	1	Screw for Chuck for No. 6 Drill	110B	1	Reversible Live Air Handle Dowel Pin Screw for No. 6 Drill
23	1	22 and 32-Tooth Gear on Counter-Shaft for No. 10 Drill (one-piece)	57	1	Grip Handle	111B	1	Reversible Live Air Handle Valve Plate Screw for No. 6 Drill
24	1	Counter-Shaft Stud for No. 10 Drill	58	1	Breast Plate, Nos. 3, 23 and 10 Drills	112B	1	Reversible Live Air Handle Valve Plate for No. 6 Drill
25	1	Counter-Shaft Nut for No. 10 Drill	59	1	Hose Nipple	113B	1	Reversible Live Air Handle Adjusting Screw for No. 6 Drill
26	1	Counter-Shaft for Nos. 3, 23 and 6 Drills	60	1	Feed Handle for Nos. 3, 23 and 10 Drills	114B	1	Reversible Live Air Handle Adjusting Washer for No. 6 Drill
27	1	Lower Cap for Counter-Shaft for Nos. 3, 23 and 6 Drills	61	1	Set Screw for Feed Handle for Nos. 3, 23 and 10 Drills	142	1	Live Air Handle complete (Reversible No. 6 Drill)
28	1	Shifter Gear for Counter-Shaft for Nos. 3 and 6 Drills	62	1	Feed Screw for Nos. 3, 23 and 10 Drills	115	2	Crank Chamber Plate
28A	1	Gear for Counter-Shaft for No. 23 Drill only	63	1	Feed Sleeve and Center for Nos. 3, 23 and 10 Drills	116	12	Crank Chamber Plate Screw
29	1	Counter-Shaft Gear to Crank for Nos. 3, 23 and 6 Drills	64B	1	Non-Reversible Live Air Handle Stem for Nos. 3, 23 and 10 Drills	118	1	Wrench for Chuck
30	1	Upper Support and Ball Race for Nos. 3, 23 and 6 Drills	65B	1	Non-Reversible Live Air Handle Sleeve for Nos. 3, 23 and 10 Drills	118A	1	Valve Lapping Rod
31	1	Upper Support and Ball Race for No. 10 Drill	66B	1	Non-Reversible Live Air Handle Cap for Nos. 3, 10 and 23 Drills	143	1	No. 0 Standard Chuck
32	1	Dividing Collar	67B	1	Non-Reversible Live Air Handle Valve for Nos. 3, 23 and 10 Drills	143A	1	No. 0 Standard Chuck Body
33	2	Valve Bushing	68B	1	Non-Reversible Live Air Handle Screw for Nos. 3, 23 and 10 Drills			
34	1	Right Valve	141	1	Live Air Handle complete (Non-Reversible, Nos. 3, 23 and 10 Drills)			
35	1	Left Valve	69	1	Gear Case Stud 1/4-in. x 26 thread			
			70	1	Gear Case Stud Nut			
			71	7	Fillister Head Screws for Gear Case			
			72B	1	Non-Reversible Live Air Handle Plug for Nos. 3, 23 and 10 Drills			

Continued on page 82

INDEPENDENT PNEUMATIC TOOL COMPANY

List of Parts—Nos. 3, 6, 10 and 23—Continued

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
143B	1	No. 0 Standard Chuck Jaws	181	12	$\frac{1}{8}$ -in. Steel Balls (not shown on parts plate)	165	4	Piston Pin
143C	1	No. 0 Standard Chuck Screw	145	1	Live Air Handle Valve Guide (not used on 6 or 23)	172	1	Eccentric Driver Pin
143D	1	No. 0 Standard Chuck Face Plate	146	2	Crank Chamber Gas- ket	173	1	Center Plate Key
143E	4	No. 0 Standard Chuck Face Plate Screw	150	1	Copper Gasket for Live Air Handle (No. 6 Drill only)	193	1	Feed Screw Center
144	1	No. 1 Morse Taper Chuck				194	1	Lower Spindle Key
						507	1	Feed Screw complete, including Nos. 60, 61, 62 and 63



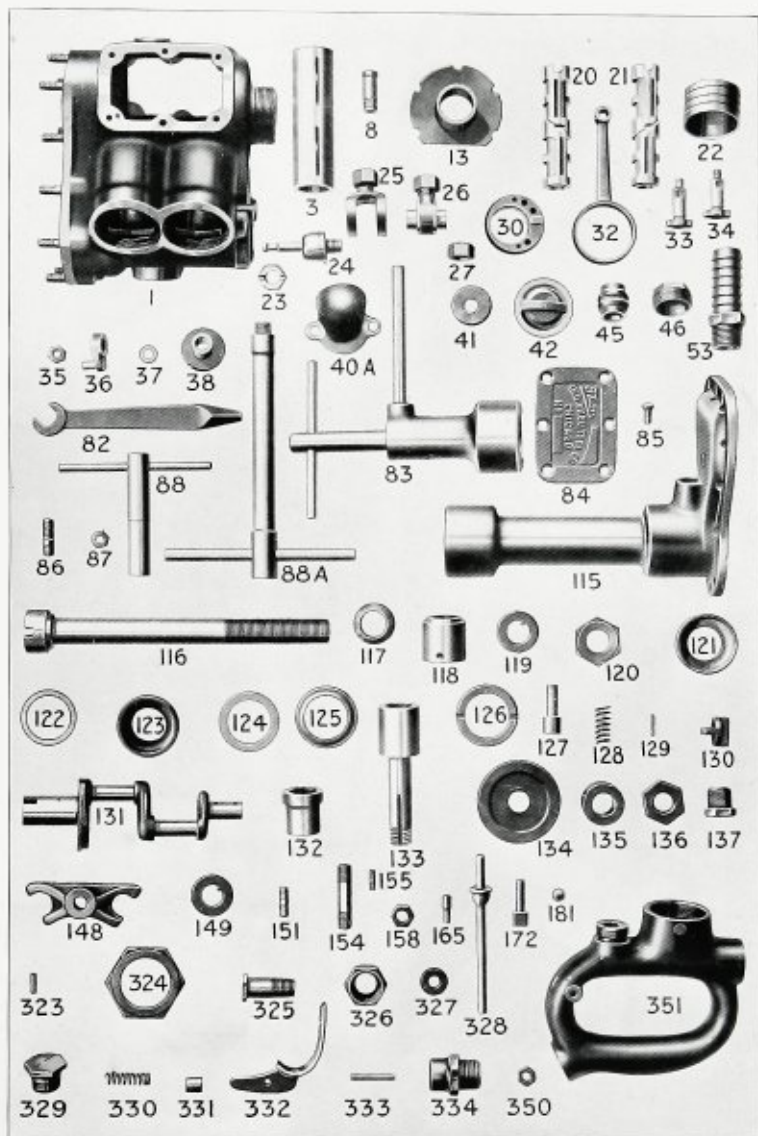
No. 7 Grinding Machine

List of Parts

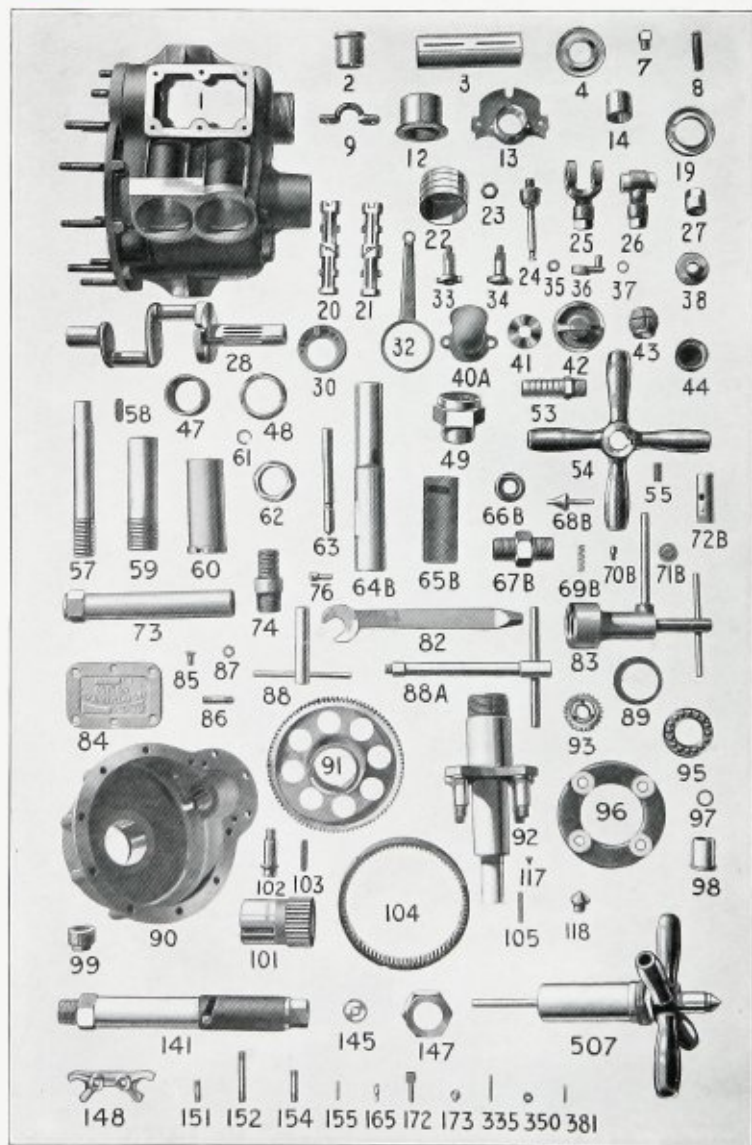
Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder, with Nos. 3, 8, 86, 151, 154, and 155	106	12	Spindle Support Screw
3	2	Valve Bushing	115	1	Spindle Support
5	1	Oil Tube (Old Style)	116	1	Spindle with No. 117
6	1	Oil Tube Plug (Old Style)	117	1	Inner Cone
7	1	Oil Tube Screw	118	1	Outer Cone
8	1	Vent Tube	119	1	Outer Cone Washer
13	1	Center Plate and Bushing	120	1	Outer Cone Check Nut
20	1	Valve, Right	121	1	Inner Ball Cup
21	1	Valve, Left	122	1	Inner Ball Cup Washer
22	4	Piston	123	1	Outer Ball Cup
22A	4	Piston, complete, with Nos. 23, 24 and 165 (not on parts plate)	124	1	Outer Ball Cup Washer
23	4	Connecting Rod Nut	125	1	Packing for Spindle
24	4	Connecting Rod and Socket	126	1	Stuffing Box
25	2	Outside Toggle with No. 27	127	1	Lock Pin
26	2	Inside Toggle with No. 27	128	1	Lock Pin Spring
27	4	Toggle Nut	129	1	Lock Pin Stop
30	1	Eccentric and Driver	130	1	Star Connection to Spindle
32	2	Eccentric Strap	131	1	Crank
33	1	Valve Stud, Right	132	1	Center Plate Bushing
34	1	Valve Stud, Left	133	1	Grinding Arbor
35	2	Valve Stud Nut	134	1	Grinding Arbor Washer
36	2	Valve Lever	135	1	Grinding Arbor Collar
37	2	Valve Stud Washer	136	1	Grinding Arbor Nut
38	2	Valve Stud Guide	137	1	Oil Plug
39	2	Exhaust Cap (Old Style)	138	1	Feed Hole Cover (Old Style)
40A	1	Exhaust Deflector (New Style)	139	1	Dividing Collar (Old Style)
40	2	Exhaust Cap Deflector (Old Style)	139A	1	Pin for Dividing Collar (Old Style) (not on parts plate)
41	2	End Plate for Valve	140	1	Grip Handle (Old Style)
42	4	Cylinder Head	145	1	Live Air Handle Valve Guide (Old Style) (not on parts plate)
45	1	Under Cap Bushing	146	2	Crank Chamber Gasket (not on parts plate)
46	1	Upper Cap	148	1	Valve Guide Clamp
53	1	Hose Nipple	149	1	Washer for Grinding Arbor
62	1	Feed Hole Cover Check Nut (Old Style)	151	4	Exhaust Deflector Stud
64B	1	Live Air Handle Stem (Old Style)	154	1	Valve Guide Clamp Stud
65B	1	Live Air Handle Sleeve (Old Style)	C155	1	Key for Upper Crank Bushing
66B	1	Live Air Handle Cap (Old Style)	158	1	Nut for Valve Guide Clamp Stud
67B	1	Live Air Handle Plug (Old Style)	165	4	Piston Pin
68B	1	Live Air Handle Valve (Old Style)	172	1	Eccentric Driver Pin
69B	1	Live Air Handle Valve Spring (Old Style)	181	30	$\frac{1}{4}$ -inch Steel Balls (not on parts plate)
70B	1	Live Air Handle Valve Screw (Old Style)	323	1	Outer Cone Washer Key
71B	1	Live Air Handle Strainer (Old Style)	324	1	Check Nut for Grip Handle
72B	1	Live Air Handle Valve Lift (Old Style)	325	1	Grip Handle Connection
141	1	Live Air Handle, complete	326	1	Union for Grip Handle Connection
82	1	Toggle Wrench	327	1	Packing for Grip Handle Connection
83	1	Piston Wrench	328	1	Throttle Valve
84	2	Crank Chamber Plate	329	1	Throttle Valve Cap
85	12	Crank Chamber Plate Screw	330	1	Throttle Valve Spring
86	12	Spindle Support Stud	331	1	Throttle Valve Bushing
87	12	Spindle Support Stud Nut	332	1	Trigger
88	1	Socket Wrench for Cylinder Stud Nut	333	1	Trigger Pin
88A	1	Valve Lapping Rod	334	1	Reducer
			350	4	Nut for Deflector Stud
			351	1	New Style Live Air Grip Handle

Always Give Size and Serial Number of Tool and Symbol Number of Part

Thor Pneumatic Grinding Machine



Parts for No. 7 Grinding Machine

Thor Non-Reversible Compound Drills

Parts for Drills Nos. 24 and 26

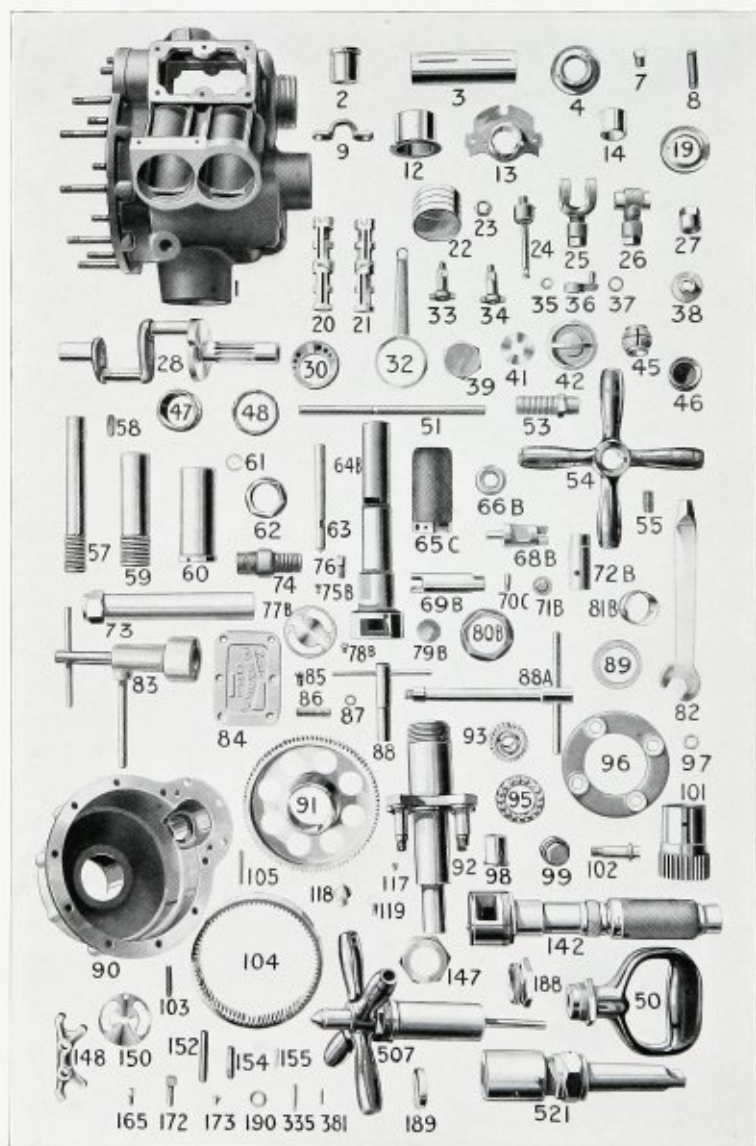
Thor Non-Reversible Compound Drills

List of Parts—Nos. 24 and 26

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder, complete with Nos. 2, 3, 7, 8, 19, 86, 151, 152, 154 and 155 (No. 154 not used in Cylinder for No. 24 Drill)	68B	1	Live Air Handle Valve
2	1	Spindle Bushing	69B	1	Live Air Handle Valve Spring
3	2	Valve Bushing	70B	1	Live Air Handle Screw
4	1	Lower Ball Race	71B	1	Live Air Handle Strainer
5	1	Oil Tube (not shown on parts plate)	72B	1	Live Air Handle Valve Lift
6	1	Oil Tube Plug (not shown on parts plate)	141	1	Live Air Handle, complete
7	1	Oil Tube Screw	73	1	Dead Handle Stem
8	1	Vent Tube	74	1	Dead Handle Plug
9	1	Suspension Hook	76	2	Screws for Suspension Hook
12	1	Gear Case Bushing	82	1	Toggle Wrench
13	1	Center Plate with No. 14	83	1	Piston Wrench
14	1	Center Plate Bushing	84	2	Crank Chamber Plate
19	1	Upper Ball Race	85	12	Crank Chamber Plate Screw
20	1	Right Valve	86	3	Gear Case Studs (short)
21	1	Left Valve	87	12	Gear Case Stud Nuts
22	4	Piston with No. 165	88	1	Socket Wrench for Gear Case Stud Nuts and Clamp Guide Stud Nuts
22A	4	Piston complete with Nos. 23, 24 and 165	88A	1	Valve Lapping Rod
23	4	Connecting Rod Nut	89	1	Packing for Spindle
24	4	Connecting Rod and Socket	90	1	Gear Case, with Nos. 12, 104, 105, and 173
25	2	Outside Toggle with No. 27	91	1	Compound Gear
26	2	Inside Toggle with No. 27	92	1	Spindle with No. 102 (four studs) and No. 335
27	4	Toggle Nut	93	4	Intermediate Gear
28	1	Crank	95	1	Ball Retainer, complete with Balls
28A	1	Crank (Old Style) (not on parts plate)	96	1	Stud Plate
29	1	Counterweight and Plate for Old Style Crank (not on parts plate)	97	4	Nuts for Intermediate Gear Studs
30	1	Eccentric and Driver	98	1	Lower Crank Bushing
32	2	Eccentric Strap	99	1	Lower Crank Cap
33	1	Right Valve Stud	101	1	Compound Pinion
34	1	Left Valve Stud	102	4	Intermediate Gear Stud
35	2	Valve Stud Nut	103	1	Key for Compound Gear
36	2	Valve Lever	104	1	Internal Gear
37	2	Valve Stud Washer	105	1	Key for Internal Gear
38	2	Valve Stud Guide	117	1	Outer Feed Sleeve Key
39	2	Exhaust Cap	118	1	Feed Screw Center
40	2	Exhaust Cap Deflector (Old Style)	181	15	$\frac{5}{16}$ -in. Steel Balls for No. 24 Drill (not on parts plate)
40A	2	Exhaust Deflector (New Style)	181	15	$\frac{7}{16}$ -in. Steel Balls for No. 26 Drill (not on parts plate)
41	2	End Plate for Valve	145	1	Live Air Handle Valve Guide
42	4	Cylinder Head	146	2	Crank Chamber Gasket (not shown on parts plate)
45	1	Upper Cap Bushing	147	1	Upper Crank Cap Nut
46	1	Upper Cap	148	1	Valve Guide Clamp (not used on No. 24 Drill)
47	1	Protection Nut	151	4	Exhaust Deflector Stud
48	1	Stuffing Box	152	9	Gear Case Stud (long)
49	1	Chuck	154	1	Stud for Valve Guide Clamp (not used on No. 24 Drill)
53	1	Hose Nipple	155	2	Key for Upper and Lower Crank Bushing
54	1	Feed Handle	158	2	Nut for Valve Guide Clamp Stud (not used on No. 24 Drill)
55	1	Set Screw for Feed Handle	165	4	Piston Pin
57	1	Feed Screw with No. 58 and No. 118	172	1	Eccentric Driver Pin
58	1	Feed Screw Key	173	2	Center Plate Key
59	1	Inner Feed Sleeve	350	4	Nut for Exhaust Deflector Stud
60	1	Outside Feed Sleeve with No. 117	381	4	Rivet for Outside Toggle
61	1	Ejecting Pin Retainer	335	4	Pin for Intermediate Gear Stud
62	1	Nut for Feed Sleeve	507	1	Feed Screw complete with Nos. 54, 55, 57, 59, 60, 61, 62 and 63
63	1	Ejecting Pin			
64B	1	Live Air Handle Stem			
65B	1	Live Air Handle Sleeve			
66B	1	Live Air Handle Cap			
67B	1	Live Air Handle Plug			

Always Give Size and Serial Number of Drill and Symbol Number of Part

Thor Reversible Compound Drills



Parts for Drills Nos. 20, 25 and 27



Reversible Compound Drills

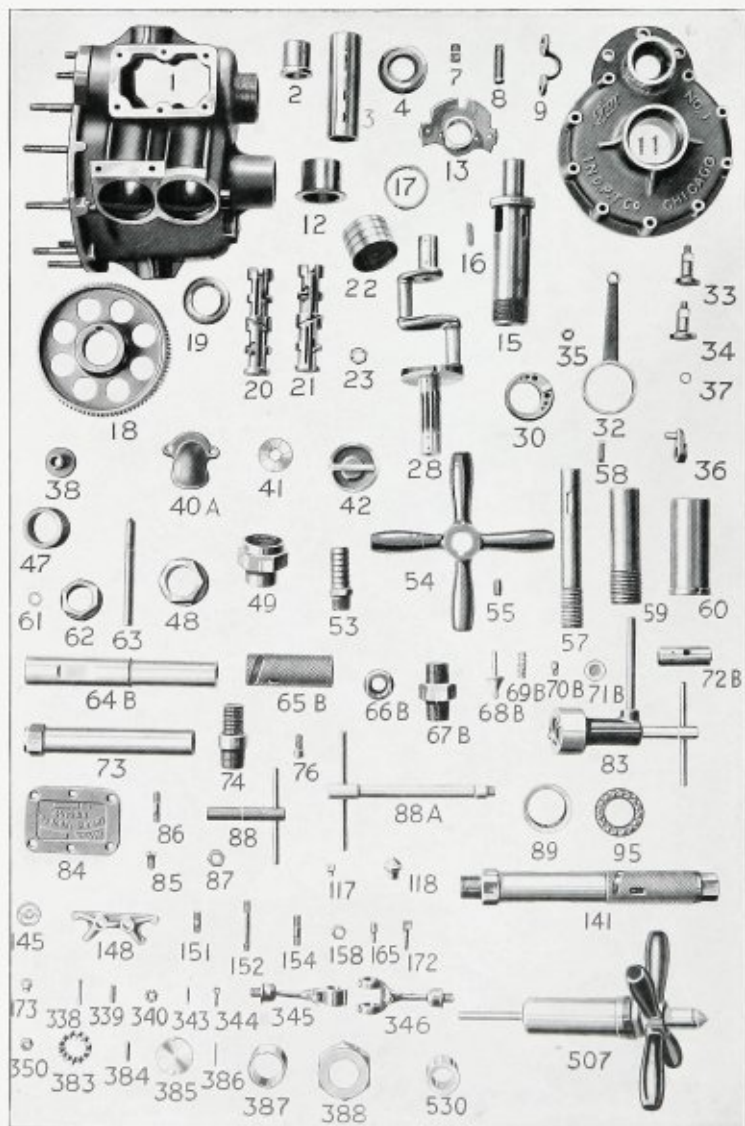
List of Parts—Nos. 20, 25 and 27

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder, complete with Nos. 2, 3, 8, 19, 86, 152, 154 and 155 (No. 154 not used in cylinder for No. 25 Drill)	75B	2	Live Air Handle Valve Plate Screw
2	1	Spindle Bushing	76	2	Screw for Suspension Hook
3	2	Valve Bushing	77B	1	Live Air Handle Valve Plate
4	1	Lower Ball Race	78B	1	Live Air Handle Adjusting Screw
5	1	Oil Tube (not on parts plate)	79B	1	Live Air Handle Adjusting Washer
7	1	Oil Tube Screw	80B	1	Live Air Handle Clamp Nut
8	1	Vent Tube	81B	1	Live Air Handle Locking Sleeve
9	1	Suspension Hook	142	1	Live Air Handle, complete
12	1	Gear Case Bushing	82	1	Toggle Wrench
13	1	Center Plate with No. 14	83	1	Piston Wrench
14	1	Center Plate Bushing	84	2	Crank Chamber Plate
19	1	Upper Ball Race	85	12	Crank Chamber Plate Screw
20	1	Right Valve	86	3	Gear Case Stud (short)
21	1	Left Valve	87	12	Gear Case Stud Nuts
22	4	Piston with No. 165	88	1	Socket Wrench for Gear Case and Clamp Guide Stud Nuts
22A	4	Piston, complete with Nos. 23, 24 and 165 (not on parts plate)	88A	1	Valve Lapping Rod
23	4	Connecting Rod Nut	89	1	Packing for Spindle
24	4	Connecting Rod and Socket	90	1	Gear Case with Nos. 12, 104, 105 and 173
25	2	Outside Toggle with No. 27	91	1	Compound Gear
26	2	Inside Toggle with No. 27	92	1	Spindle with 102 (four studs) and No. 335
27	4	Toggle Nut	93	4	Intermediate Gear
28	1	Crank	95	1	Ball Retainer, complete, with balls
28A	1	Crank, Old Style (not shown on parts plate)	96	1	Stud Plate
29	1	Counterweight and Plate for Old Style Crank (not shown on parts plate)	97	4	Nut for Intermediate Gear Stud
30	1	Eccentric and Driver	98	1	Lower Crank Bushing
32	2	Eccentric Strap	99	1	Lower Crank Cap
33	1	Right Valve Stud	101	1	Compound Pinion
34	1	Left Valve Stud	102	4	Intermediate Gear Studs
35	2	Valve Stud Nut	103	4	Key for Compound Gear
36	2	Valve Stud Lever	104	1	Internal Gear
37	2	Valve Stud Washer	105	1	Key for Internal Gear
38	2	Valve Stud Guide	117	1	Outer Feed Sleeve Key
39	2	Exhaust Cap	118	1	Feed Screw Center
41	2	End Plate for Valve	119	1	Dowel Pin Screw for Live Air Handle
42	4	Cylinder Head	181	14	$\frac{1}{2}$ -in. Steel Balls for No. 25 Drill (not shown on parts plate)
45	1	Upper Cap Bushing	181	14	$\frac{3}{8}$ -in. Steel Balls for No. 27 Drill (not shown on parts plate)
46	1	Upper Cap	181	13	$\frac{1}{4}$ -in. Steel Balls for No. 20 Drill (not shown on parts plate)
47	1	Protection Nut	146	2	Crank Chamber Gasket (not shown on parts plate)
48	1	Stuffing Box	147	1	Upper Crank Cap Nut
50	1	Grip Handle with Nos. 188 and 189	148	1	Valve Guide Clamp (not used on No. 25 Drill)
51	1	Ejecting Pin for Grip Handle with No. 190	150	1	Copper Gasket for Live Air Handle Plate
52	1	Ejecting Screw (not on parts plate)	152	9	Gear Case Stud (long)
53	1	Hose Nipple	154	2	Stud for Valve Guide Clamp (not used on No. 25 Drill)
54	1	Feed Handle	155	2	Key for upper and lower Crank Bushing
55	1	Feed Handle Set Screw	158	2	Nut for Valve Guide Clamp (not on parts plate) (not used on No. 25 Drill)
57	1	Feed Screw with No. 58 and No. 118	165	4	Piston Pin
58	1	Feed Screw Key	172	1	Eccentric Driver Pin
59	1	Inner Sleeve for Feed Screw	173	2	Center Plate Key
60	1	Outside Sleeve for Feed Screw with No. 117	188	1	Clamp Nut for Grip Handle
61	1	Ejecting Pin Retainer for Feed Screw	189	1	Retainer Nut for Grip Handle
62	1	Feed Sleeve Nut	190	1	Ejecting Pin Retainer for Grip Handle
63	1	Ejecting Pin for Feed Screw	335	4	Intermediate Gear Stud Pin
64B	1	Live Air Handle Stem	381	4	Rivet for Outside Toggle
65C	1	Live Air Handle Sleeve	507	1	Feed Screw complete with 54, 55, 57, 59, 60, 61, 62 and 63
66B	1	Live Air Handle Cap	521	1	Square Chuck with Morse Taper Shank
68B	1	Live Air Handle Valve			
69B	1	Live Air Handle Valve Stem			
70C	1	Live Air Handle Screw			
71B	1	Live Air Handle Strainer			
72B	1	Live Air Handle Operating Plug			
73	1	Dead Handle Stem			
74	1	Dead Handle Plug			

Always Give Size and Serial Number of Drill and Symbol Number of Part

Thor Roller Bearing Drills

Non-Reversible



Parts for Drills Sizes A, B, C and D



Roller Bearing Drills

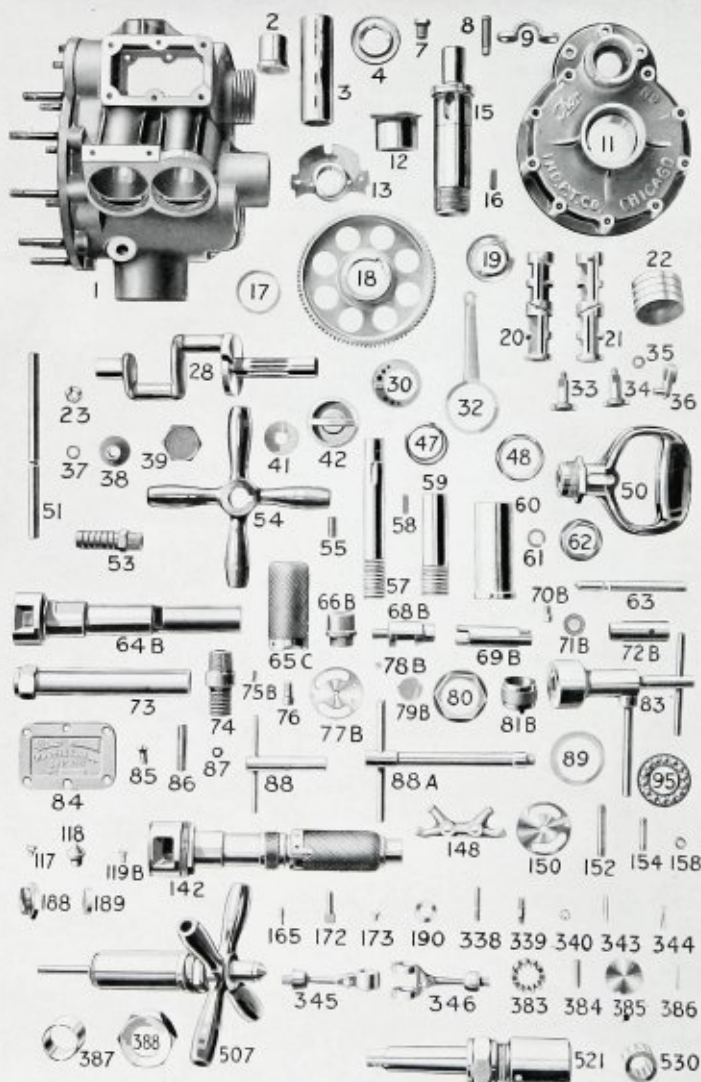
Non-Reversible

List of Parts—Sizes A, B, C and D

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder, complete, with Nos. 2, 3, 8, 19, 86, 151, 152 and 154	70B	1	Live Air Handle Screw
2	1	Spindle Bushing	71B	1	Live Air Handle Strainer
3	2	Valve Bushing	72B	1	Live Air Handle Valve Lift
4	1	Lower Ball Race	73	1	Dead Handle Stem
7	1	Oil Plug	74	1	Dead Handle Plug
8	1	Vent Tube	76	2	Suspension Hook Screw
9	1	Suspension Hook (not used on D Drill)	83	1	Piston Wrench
11	1	Gear Case with Nos. 12 and 173	84	2	Crank Chamber Plate
12	1	Gear Case Bushing	85	12	Crank Chamber Plate Screw
13	1	Center Plate	86	3	Gear Case Stud (short)
15	1	Spindle with Nos. 4 and 16	87	15	Gear Case Stud Nut for Size A
16	1	Spindle Key	87	12	Gear Case Stud Nut for Sizes B, C and D
17	1	Spindle Collar	88	1	Socket Wrench for Gear Case Stud Nut and Clamp Guide Stud Nut
18	1	Gear Wheel	88A	1	Valve Lapping Rod
19	1	Upper Ball Race	89	1	Packing for Spindle
20	1	Right Valve	95	1	Balls and Retainer, complete
21	1	Left Valve	117	1	Outer Feed Sleeve Key
22A	2	Piston with No. 165	118	1	Feed Screw Center
22B	2	Piston, complete, with Nos. 25, 165 and 345	141	1	Live Air Handle, complete
23	4	Piston, complete with Nos. 25, 165 and 346	145	1	Live Air Handle Valve Guide
24	1	Connecting Rod Socket Nut	146	2	Gasket for Crank Chamber Guide Plate (not shown on parts plate)
28	1	Crank	148	1	Valve Guide Clamp
30	1	Eccentric and Driver	151	4	Deflector Stud
32	2	Eccentric Strap	152	9	Gear Case Stud (long) for Sizes B, C and D
33	1	Right Valve Stud	152	12	Gear Case Stud (long) for A Drill
34	1	Left Valve Stud	154	2	Stud for Valve Guide Clamp
35	2	Valve Stud Nut	158	2	Nut for Valve Guide Clamp Stud
36	2	Valve Lever	165	4	Piston Pin
37	2	Valve Stud Washer	172	1	Eccentric Driver Pin
38	2	Valve Stud Guide	173	2	Center Plate Key for B and C Drills
40A	2	Exhaust Deflector	181	14	3/4-inch Steel Balls for A and B Drills (not shown on parts plate)
41	2	End Plate for Valve	181	14	3/4-inch Steel Balls for C and D Drills (not shown on parts plate)
42	4	Cylinder Head	338	2	Inside Connecting Rod Pin
47	1	Protection Nut	339	4	Connecting Rod Stud
48	1	Stuffing Box	340	4	Connecting Rod Stud Nut
49	1	Square Chuck	343	4	Outside Connecting Rod Pin
53	1	Hose Nipple	344	4	Connecting Rod Cotter Pin
54	1	Feed Handle	345	2	Inside Connecting Rod, complete
55	1	Set Screw for Feed Handle	346	2	Outside Connecting Rod, complete
57	1	Feed Screw with Nos. 58 and 118	350	4	Nut for Exhaust Deflector Stud
58	1	Feed Screw Key	383	4	Roller Retainer (must be ordered complete, see No. 530)
59	1	Inner Feed Sleeve	384	24	Rollers
60	1	Outer Feed Sleeve	385	2	Thrust Plate
61	1	Ejecting Pin Retainer	386	4	Rivet for Roller Retainer
62	1	Nut for Feed Sleeve	387	2	Crank Roller Bearing Bushing
63	1	Ejecting Pin	388	2	Thrust Plate Nut
64B	1	Live Air Handle Stem	507	1	Feed Screw, complete, with Nos. 54, 55, 57, 59, 60, 61, 62, 63
65B	1	Live Air Handle Sleeve	530	2	Rollers and Retainer, complete
66B	1	Live Air Handle Cap			
67B	1	Live Air Handle Plug			
68B	1	Live Air Handle Valve			
69B	1	Live Air Handle Valve Spring			

Always Give Size and Serial Number of Drill and Symbol Number of Part

Thor Reversible Roller Bearing Drills



Parts for Drills Sizes AA, BB, CC, AW and BW



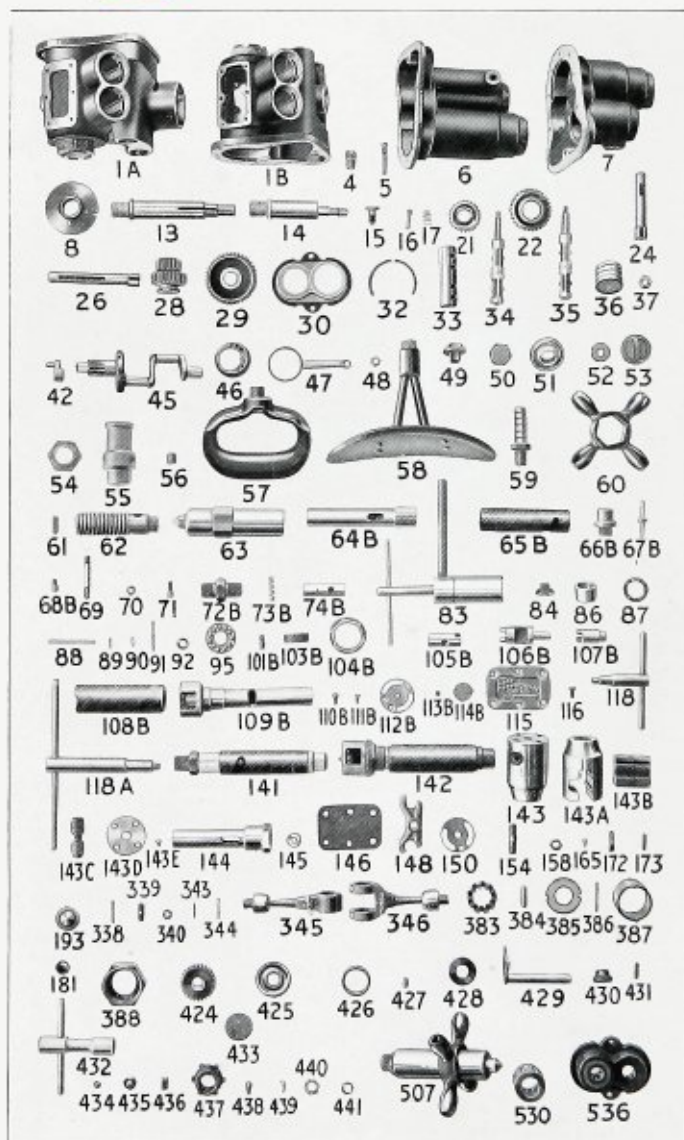
Reversible Roller Bearing Drills

List of Parts—Sizes AA, BB, CC, AW and BW

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder complete with Nos. 2, 3, 8, 19, 86, 152 and 154	75B	2	Live Air Handle Valve Plate Screw
2	1	Spindle Bushing	76	2	Suspension Hook Screw
3	2	Valve Bushing	77B	1	Live Air Handle Valve Plate
4	1	Lower Ball Race	78B	1	Live Air Handle Adjusting Screw
7	1	Oil Plug	79B	1	Live Air Handle Adjusting Washer
8	1	Vent Tube	80	1	Live Air Handle Clamp Nut
9	1	Suspension Hook (not used on AW and BW Drills)	81B	1	Live Air Handle Locking Sleeve
11	1	Gear Case with Nos. 12 and 175	83	1	Piston Wrench
12	1	Gear Case Bushing	84	2	Crank Chamber Plate
13	1	Center Plate	85	12	Crank Chamber Plate Screw
15	1	Spindle with Nos. 4 and 16	86	3	Gear Case Stud (short)
16	1	Spindle Key	87	15	Nut for Gear Case Stud for Size AA
17	1	Spindle Collar	87	12	Nut for Gear Case Stud for Sizes BB, CC, AW and BW
18	1	Gear Wheel	88	1	Socket Wrench for Gear Case Stud Nut
19	1	Upper Ball Race	88A	1	Valve Lapping Rod
20	1	Right Valve	89	1	Packing for Spindle
21	1	Left Valve	95	1	Balls and Retainer, complete
22	4	Piston with No. 165	117	1	Outer Feed Sleeve Key
22A	2	Piston complete with Nos. 23, 165 and 345	118	1	Feed Screw Center
22B	2	Piston complete with Nos. 23, 165 and 346	119B	1	Live Air Handle Dowel Pin Screw
23	4	Connecting Rod Socket Nut	142	1	Live Air Handle, complete (reversible) (see Reg. Drills)
28	1	Crank	146	2	Gasket for Crank Chamber Plate (not shown on parts plate)
30	1	Eccentric and Driver	148	1	Valve Guide Clamp
32	2	Eccentric Strap	150	1	Copper Gasket for Live Air Handle
33	1	Right Valve Stud	152	12	Gear Case Stud (long) for Size AA
34	1	Left Valve Stud	152	9	Gear Case Stud (long) for Sizes BB, CC, AW and BW
35	2	Valve Stud Nut	154	2	Stud for Valve Guide Clamp
36	2	Valve Lever	158	2	Nut for Valve Guide Clamp Stud
37	2	Valve Stud Washer	165	4	Piston Pin
38	2	Valve Stud Guide	172	1	Eccentric Driver Pin
39	2	Exhaust Cap	173	1	Center Plate Key (for Size BB and CC Drills)
41	2	End Plate for Valve	181	14	$\frac{3}{8}$ -in. Steel Ball for AA and BB Drills
42	4	Cylinder Head	181	14	$\frac{1}{2}$ -in. Steel Ball for CC, AW and BW Drills
47	1	Protection Nut	188	1	Clamp Nut for Grip Handle
48	1	Stuffing Box	189	1	Retainer Nut for Grip Handle
50	1	Grip Handle complete with Nos. 188 and 189	190	1	Ejecting Pin Retainer for Grip Hand
51	1	Ejecting Pin for Grip Handle with No. 190	338	2	Inside Connecting Rod Pin
53	1	Hose Nipple	339	4	Connecting Rod Stud
54	1	Feed Handle	340	4	Connecting Rod Stud Nut
55	1	Set Screw for Feed Handle	343	4	Outside Connecting Rod Pin
57	1	Feed Screw with Nos. 58 and 118	344	4	Connecting Rod Cotter Pin
58	1	Feed Screw Key	345	2	Inside Connecting Rod, complete
59	1	Inner Feed Sleeve	346	2	Outside Connecting Rod, complete
60	1	Outer Feed Sleeve with No. 117	383	4	Roller Retainer (must be ordered complete, see No. 530)
61	1	Ejecting Pin Retainer for Feed Screw	384	24	Rollers for Roller Retainer
62	1	Nut for Feed Sleeve	385	2	Thrust Plate
63	1	Ejecting Pin for Feed Screw	386	4	Rivet for Roller Retainer
64B	1	Live Air Handle Stem	387	2	Crank Roller Bearing Bushing
65C	1	Live Air Handle Sleeve	388	2	Thrust Plate Nut
66B	1	Live Air Handle Cap	507	1	Feed Screw complete with Nos. 54, 55, 57, 59, 90, 61, 62 and 63
68B	1	Live Air Handle Valve	521	1	Square Chuck with Morse Taper Shank
69B	1	Live Air Handle Valve Stem	530	2	Rollers and Retainer, complete
70B	1	Live Air Handle Screw			
71B	1	Live Air Handle Strainer			
72B	1	Live Air Handle Operating Plug			
73	1	Dead Handle Stem			
74	1	Dead Handle Plug			

Always Give Size and Serial Number of Drill and Symbol Number of Part

Thor Roller Bearing Drills



Parts for Drills Sizes E, F, G and CW

INDEPENDENT PNEUMATIC TOOL COMPANY

List of Parts—Sizes E, F, G and CW

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pos.	Description
1A	1	Cylinder for CW Drill with Nos. 4, 5 and 33	65B	1	Non-Reversible Live Air Handle Sleeve for E, G, and F Drills	113B	1	Reversible Live Air Handle Adjusting Screw for CW Drill
1B	1	Cylinder for E, G, and F Drills with Nos. 4, 5, and 33	66B	1	Non-Reversible Live Air Handle Cap	114B	1	Reversible Live Air Handle Adjusting Washer for CW Drill
4	1	Oil Tube Screw	67B	1	Non-Reversible Live Air Handle Valve	115	2	Crank Chamber Plate
5	1	Vent Tube	68B	1	Non-Reversible Live Air Handle Screw for E, G, and F Drills	116	12	Crank Chamber Plate Screw
6	1	Gear Case for E and CW Drills with Nos. 426, 427, 428 and 433	69	1	Gear Case Stud	118	1	Wrench for Chuck for CW Drill
7	1	Gear Case for G and F Drills with Nos. 426, 427, 428 and 433	70	1	Gear Case Stud Nut	118A	1	Valve Lapping Rod
8	1	Center Plate	71	9	Fillister Head Screw for Gear Case and Upper Support	141	1	Non-Reversible Live Air Handle, complete, E, G, and F Drills
13	1	Spindle for E and CW Drills	72B	1	Non-Reversible Live Air Handle Plug for E, G, and F Drills	142	1	Reversible Live Air Handle, complete, CW Drill
14	1	Spindle for G and F Drills	73B	1	Non-Reversible Live Air Handle Spring for E, G, and F Drills	143	1	No. 0 Standard Chuck
15	1	Lock for Spindle G and F Drills	74B	1	Non-Reversible Live Air Handle Valve Lift for E, G, and F Drills	143A	1	No. 0 Standard Chuck Body
16	1	Screw for Spindle Lock for G and F Drills	83	1	Piston Wrench	143B	2	No. 0 Standard Chuck Jaws
17	1	Spindle Lock Spring for G and F Drills	84	1	Oil Plug	143C	1	No. 0 Standard Chuck Screw
21	1	26-tooth Gear and Ball Race E, CW and G Drills	86	1	Dividing Collar for Spindle for E and CW Drills	143D	1	No. 0 Standard Chuck Face Plate
22	1	34-tooth Lower Spindle Gear E and CW Drills	87	1	Spindle Packing	143E	4	No. 0 Standard Chuck Face Plate Screw
24	1	Counter-Shaft for G and F Drills	88	1	Key for Shifter Gear for E and CW Drills	144	1	No. 1 Morse Taper Chuck
26	1	Counter-Shaft for E and CW Drills	89	1	Key for Upper Spindle Gear for E and CW Drills	145	1	Live Air Handle Valve Guide
28	1	Shifter Gear for E and CW Drills	89	2	Key for Lower Counter-Shaft Gear and Spindle Gear for G and F Drills	146	2	Gasket for Crank Chamber Plate
29	1	Counter-Shaft Gear	90	1	Key for Upper Counter-Shaft Gear	148	1	Valve Guide Clamp
30	1	Upper Support	91	1	Taper Pin for Wood Chuck for CW Drill	150	1	Copper Gasket for Live Air Handle CW Drill
32	1	Dividing Collar	92	2	Valve Stud Washer	154	1	Stud for Valve Guide Clamp
33	2	Valve Bushing	95	1	Balls and Retainer, complete	158	1	Nut for Valve Guide Clamp Stud
34	1	Left Valve	101B	1	Reversible Live Air Handle Screw for CW Drill	165	4	Piston Pin
35	1	Right Valve	103B	1	Reversible Live Air Handle Locking Sleeve for CW Drill	172	1	Eccentric Driver Pin
36	4	Piston with No. 165	104B	1	Reversible Live Air Handle Clamp Nut for CW Drill	173	1	Center Plate Key
36A	4	Piston, complete, with Nos. 37, 165 and 345	105B	1	Reversible Live Air Handle Operating Plug for CW Drill	181	11	1/4-inch Steel Balls
36B	4	Piston, complete, with Nos. 37, 165 and 346	106B	1	Reversible Live Air Handle Valve for CW Drill	193	1	Feed Screw Center
37	4	Connecting Rod Socket Nut	107B	1	Reversible Live Air Handle Valve Stem for CW Drill	338	2	Inside Connecting Rod Rivet
42	2	Valve Lever	108B	1	Reversible Live Air Handle Sleeve for CW Drill	339	4	Connecting Rod Stud
45	1	Crank Shaft	109B	1	Reversible Live Air Handle Stem for CW Drill	340	4	Connecting Rod Stud Nut
46	1	Eccentric and Driver	110B	1	Reversible Live Air Handle Dowel Pin Screw for CW Drill	343	4	Outside Connecting Rod Rivet
47	2	Eccentric Strap	111B	1	Reversible Live Air Handle Valve Plate Screw for CW Drill	344	4	Connecting Rod Cotter Pin
48	2	Valve Stud Nut	112B	1	Reversible Live Air Handle Valve Plate for CW Drill	345	2	Inside Connecting Rod
49	2	Valve Stud Guide				346	2	Outside Connecting Rod
50	2	Exhaust Cap for CW Drill				388	1	Crank Cap
51	2	Exhaust Deflector for E, G, and F Drills				424	1	Lower Counter-Shaft Gear for G Drill
52	2	End Plate for Valve				425	1	Ball Race for Spindle
53	4	Cylinder Head				426	5	Roller Bushing (small)
54	1	Stuffing Box				427	57	Rollers for Roller Bushing
55	1	Chuck for Wood Bit for CW Drill with No. 56				428	7	End Washer for Roller Bushing
56	1	Screw for Chuck for CW Drill				429	1	Gear Shifter for E and CW Drill
57	1	Grip Handle				430	1	Knurled Collar for Gear Shifter E and CW Drill
58	1	Breast Plate				431	1	Taper Pin for Knurled Collar, E and CW
59	1	Hose Nipple				432	1	Socket Wrench for Connecting Rod Nut and Gear Case Nut
60	1	Feed Handle				433	2	Thrust Plate for Roller Bushing
61	1	Set Screw for Feed Handle						
62	1	Feed Screw						
63	1	Feed Sleeve with No. 193						
64B	1	Non-Reversible Live Air Handle Stem for E, G, and F Drills						

Continued on page 94

INDEPENDENT PNEUMATIC TOOL COMPANY

List of Parts—Sizes E, F, G and CW—Continued

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
434	1	Ball for Locking Gear Shifter, E and CW	440	1	Stuffing Box for Gear Shifter, E and CW	459	1	34-tooth Lower Spindle Gear and Ball Race for F Drill (not shown on parts plate)
435	1	Screw for Locking Gear Shifter, E and CW	441	1	Packing for Gear Shifter, E and CW	460	1	Lower Counter-Shaft Gear for F Drill (not shown on parts plate)
436	1	Spring for Locking Gear Shifter, E and CW	457	1	Roller Bushing (large) Plate for Roller Bushing (large), Lower E, CW and F (not shown on parts plate)	507	1	Feed Screw, complete, with Nos. 60, 61, 62, and 63
437	1	Grip Handle Connection	458	2	Plate for Roller Bushing (large), Upper and Lower G (not shown on parts plate)	536	1	Upper Support, complete, with Nos. 426, 427, and 428
439	1	Key for Lower Spindle Gear, E and CW Drills						



Roller Bearing Grinder

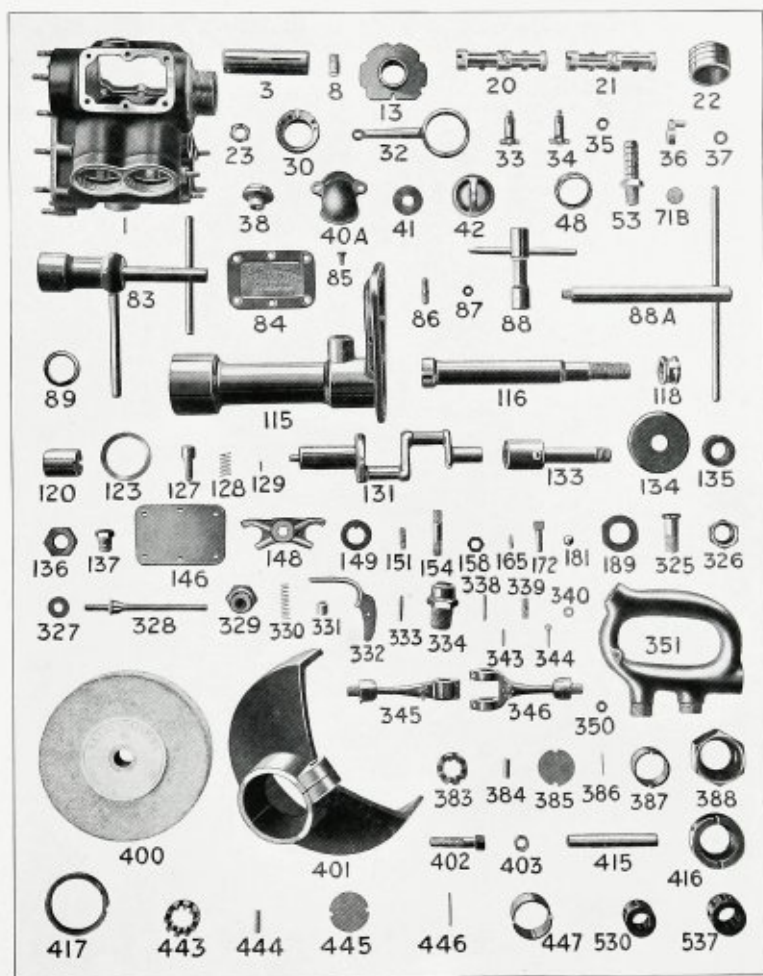
List of Parts—Size H

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder complete with Nos. 3, 86, 151 and 354	149	1	Lock Washer for Grinding Arbor
3	2	Valve Bushing	151	4	Stud for Exhaust Deflector
8	1	Vent Tube	154	1	Stud for Valve Guide Clamp
13	1	Center Plate	158	1	Valve Guide Clamp Stud Nut
20	1	Right Valve	165	4	Piston Pin
21	1	Left Valve	172	1	Eccentric Driver Pin
22	4	Piston with No. 165	181	10	Steel Balls
22A	2	Piston, complete with Nos. 23 and 345	189	1	Retainer Nut for Grip Handle
22B	2	Piston, complete with Nos. 23 and 346	325	1	Grip Handle Connection
23	4	Connecting Rod Nut	326	1	Union for Grip Handle Connection
30	1	Eccentric and Driver	327	1	Packing for Grip Handle Connection
32	2	Eccentric Strap	328	1	Throttle Valve
33	1	Right Valve Stud	329	1	Throttle Valve Cap
34	1	Left Valve Stud	330	1	Throttle Valve Spring
35	2	Valve Stud Nut	331	1	Throttle Valve Bushing
36	2	Valve Lever	332	1	Trigger
37	2	Valve Stud Washer	333	1	Trigger Pin
38	2	Valve Stud Guide	334	1	Reducer and Strainer
40A	2	Exhaust Deflector	338	2	Inside Connecting Rod Pin
41	2	End Plate for Valve	339	4	Connecting Rod Stud
42	4	Cylinder Head	340	4	Connecting Rod Stud Nut
48	1	Stuffing Box	343	4	Outside Connecting Rod, complete
53	1	Hose Nipple	344	4	Cotter Pin for Connecting Rod
71B	1	Strainer for Reducer	345	2	Inside Connecting Rod, complete
83	1	Piston Wrench	346	2	Outside Connecting Rod, complete
84	2	Crank Chamber Plate	350	4	Nut for Exhaust Deflector Stud
85	12	Crank Chamber Plate Screw	351	1	Grip Handle
86	12	Spindle Support Stud	383	2	Upper Roller Retainer (must be ordered complete, see No. 530)
87	12	Nut for Spindle Support Stud	384	8	Upper Crank Roller
88	1	Socket Wrench for Spindle Support Stud Nut and Connecting Rod Nut	385	1	Upper Thrust Plate
88A	1	Valve Lapping Rod	386	2	Rivet for Upper Roller Retainer
89	1	Packing for Spindle	387	1	Upper Crank Bushing
115	1	Spindle Support with Nos. 8 and 123	388	1	Crank Cap
116	1	Spindle	400	1	Emery Wheel
118	1	Ball Race	401	1	Emery Wheel Guard
120	1	Nut for Ball Race	402	1	Emery Wheel Guard Clamp Bolt
123	1	Ball Cone	403	1	Emery Wheel Guard Clamp Bolt Nut
127	1	Lock Pin	415	1	Guide for Spindle
128	1	Lock Pin Spring	416	1	Nut for Ball Cone
129	1	Lock Pin Stop	417	1	Check Nut for Ball Cone
131	1	Crank	443	2	Lower Roller Retainer (must be ordered complete, see No. 537)
133	1	Grinding Arbor	444	12	Lower Crank Roller
134	2	Grinding Arbor Washer	445	1	Thrust Plate (Lower)
135	1	Grinding Arbor Collar	446	2	Rivet for Lower Roller Retainer
136	1	Grinding Arbor Nut	447	1	Roller Crank Bushing
137	1	Oil Plug	530	1	Upper Roller Retainer, complete
146	2	Gasket for Crank Chamber Plate	537	1	Lower Roller Retainer, complete
148	1	Valve Guide Clamp			

Always Give Size and Serial Number of Tool and Symbol Number of Part



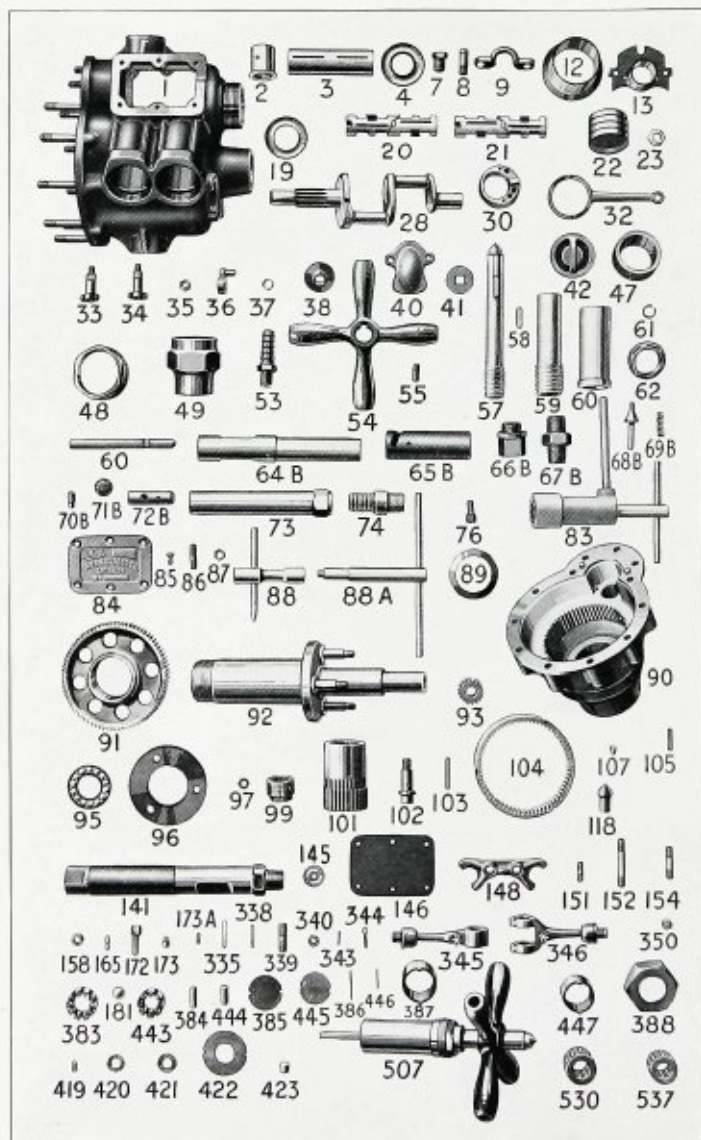
Size H Roller Bearing Grinder



Parts for Size H Grinder

Thor Roller Bearing Compound Drills

Non-Reversible



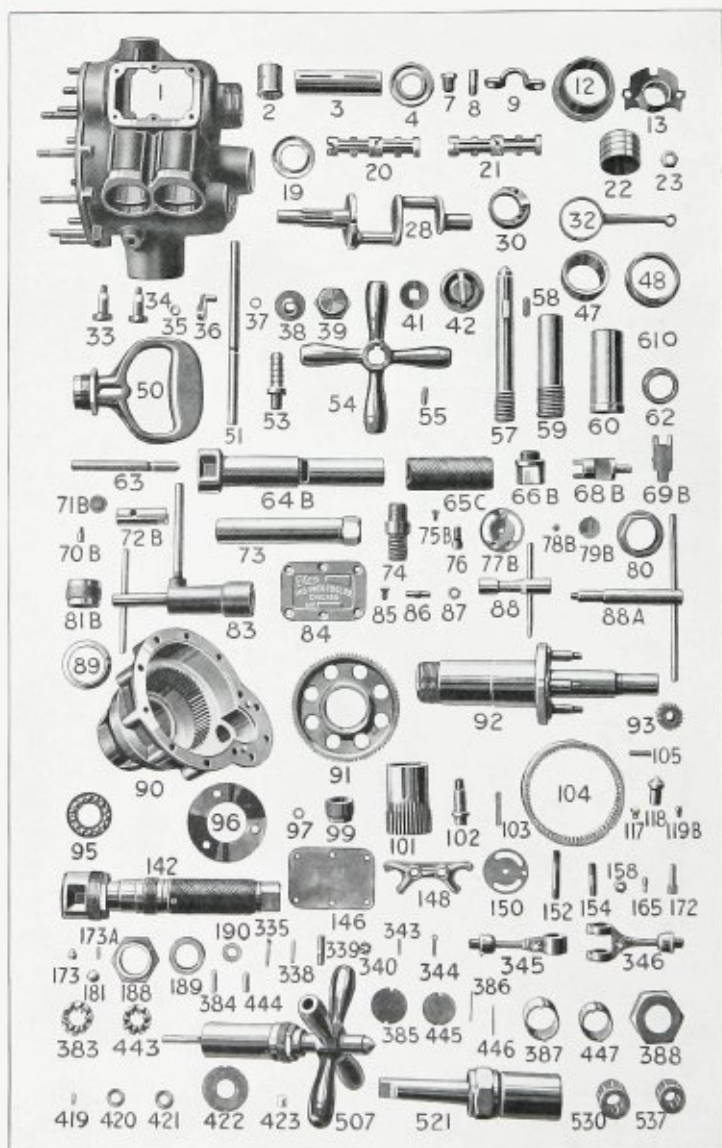
Thor Roller Bearing Compound Drills

List of Parts—Sizes N and P

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	
1	1	Cylinder complete with Nos. 2, 8, 19, 86, 151, 152 and 154	86	3	Gear Case Stud (short)	345	2	Inside Connecting Rod and Socket	
2	1	Spindle Bushing	87	12	Gear Case Stud Nut	346	2	Outside Connecting Rod and Socket	
3	2	Valve Bushing	88	1	Socket Wrench for Gear Case Stud Nut and Connecting Rod Nut	350	4	Deflector Stud Nut	
4	1	Lower Ball Race					4	Roller Retainers for N Drill (must be ordered complete, see Nos. 530 and 537)	
7	1	Oil Plug	88A	1	Valve Lapping Rod	383			
8	1	Vent Tube	89	1	Packing for spindle		2	Upper Roller Retainer for N Drill	
9	1	Suspension Hook	90	1	Gear Case with Nos. 12, 104, 105, 173		48	Rollers for Roller Retainer for N Drill	
12	1	Gear Case Bushing	91	1	Compound Gear		20	Rollers for Upper Roller Retainer for P Drill	
13	1	Center Plate	92	1	Spindle with Nos. 102 and 335 (No. 335 not used on P Drill)	384	2	Thrust Plate for Crank Bushing for N Drill	
19	1	Upper Ball Race				385	1	Thrust Plate for Lower Crank Bushing for P Drill	
20	1	Right Valve					4	Rivet for Roller Retainer for N Drill	
21	1	Left Valve					2	Rivet for Upper Roller Retainer for P Drill	
22	4	Piston with 165					2	Crank Bushing for N Drill	
22A	4	Piston complete with Nos. 23 and 345 (not shown on parts plate)	93	2	Intermediate Gear for P Drill with Nos. 419, 420 and 421		387	1	Upper Crank Bushing for P Drill
22B	4	Piston complete with Nos. 23 and 346 (not shown on parts plate)					388	1	Upper Crank Cap
23	4	Connecting Rod Socket Nut	95	1	Balls and Retainer, complete	386	48	Rollers for Intermediate Gear for N Drill	
28	1	Crank	96	1	Stud Plate		66	Rollers for Intermediate Gear for P Drill	
30	1	Eccentric and Driver				419	2	Separating Washers for Intermediate Gear for N Drill	
32	2	Eccentric Strap					420	3	Separating Washers for Intermediate Gear for P Drill
33	1	Right Valve	97	2	Nut for Intermediate Gear Stud for N Drill		443	2	Lower Roller Retainer for P Drill (must be ordered complete, see No. 537)
34	1	Left Valve				444	16	Rollers for Lower Roller Retainer for P Drill	
35	2	Valve Stud Nut				445	1	Thrust Plate for Lower Crank Bushing for P Drill	
36	2	Valve Lever	99	1	Lower Crank Cap		446	2	Rivet for Lower Roller Retainer for P Drill
37	2	Valve Stud Washer	101	1	Compound Piston		447	1	Lower Crank Bushing for P Drill
38	2	Valve Stud Guide					507	1	Feed Screw, complete with Nos. 54, 55, 57, 60, 61, 62 and 63
40	2	Exhaust Deflector	102	2	Intermediate Gear Stud for N Drill		2	Roller Retainers complete with Nos. 383, 384 and 386	
41	2	End Plate for Valve				530	1	Upper Roller Retainer complete with Nos. 383, 384 and 386	
42	4	Cylinder Head	103	3	Intermediate Gear Stud for P Drill		537	1	Lower Roller Retainer complete with Nos. 383, 384 and 386
47	1	Protection Nut							
48	1	Stuffing Box	104	1	Key for Compound Gear				
49	1	Square Chuck	105	1	Internal Gear				
53	1	Hose Nipple	107	3	Key for Internal Gear				
54	1	Feed Handle	117	1	Outer Feed Sleeve Key				
55	1	Set Screw for Feed Handle	118	1	Feed Screw Cutter				
			141	1	Live Air Handle, complete	421	6	End Washers for Intermediate Gear for N Drill	
57	1	Feed Screw with Nos. 58 and 118	145	1	Live Air Handle Valve Guide				
58	1	Feed Screw Key							
59	1	Inner Sleeve Feed	146	1	Live Air Handle Valve Guide				
60	1	Outer Feed Sleeve with No. 117	148	2	Gasket for Crank Chamber Plate	443	2	Lower Roller Retainer for P Drill (must be ordered complete, see No. 537)	
61	1	Ejecting Pin Retainer	151	4	Valve Guide Clamp				
62	1	Nut for Feed Sleeve							
63	1	Ejecting Pin	154	4	Exhaust Deflector Stud	444	16	Rollers for Lower Roller Retainer for P Drill	
64B	1	Live Air Handle Stem	152	9	Gear Case Stud (long)				
65B	1	Live Air Handle Sleeve	154	2	Stud for Valve Guide Clamp				
66B	1	Live Air Handle Cap	158	2	Nut for Valve Guide Clamp Stud	445	1	Thrust Plate for Lower Crank Bushing for P Drill	
67B	1	Live Air Handle Plug	165	4	Piston Pin				
68B	1	Live Air Handle Valve	172	1	Eccentric Driver Pin	446	2	Rivet for Lower Roller Retainer for P Drill	
69B	1	Live Air Handle Valve Spring	173	2	Center Plate Dowel Pin	447	1	Lower Crank Bushing for P Drill	
70B	1	Live Air Handle Screw	181	14	$\frac{1}{4}$ -inch Steel Balls for Ball Race				
71B	1	Live Air Handle Strainer							
			335	2	Pin for Intermediate Gear Stud N Drill				
72B	1	Live Air Handle Valve Lift	338	2	Rivet for Inside Connecting Rod				
73	1	Dead Handle Stem	339	4	Connecting Rod Studs				
74	1	Dead Handle Plug	340	4	Connecting Rod Studs Nut	530	1	Upper Roller Retainer complete with Nos. 383, 384 and 386	
76	2	Suspension Hook Screw							
83	1	Piston Wrench	343	4	Rivet for Outside Connecting Rod	537	1	Lower Roller Retainer complete with Nos. 383, 384 and 386	
84	1	Crank Chamber Plate							
85	12	Crank Chamber Plate Screw	344	4	Cotter Pin for Connecting Rod Stud				

Always Give Size and Serial Number of Drill and Symbol Number of Part

Thor Roller Bearing Compound Drills



Parts for Drills Sizes NN, PP and SS



Reversible Roller Bearing Compound Drills

List of Parts—Sizes NN, PP and SS

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder complete, with Nos. 2, 8, 19, 86, 152 and 154	75B	2	Live Air Handle Screw	150	1	Copper Washer for Live Air Handle
2	1	Spindle Bushing	76	2	Suspension Hook	152	9	Gear Case Stud (long)
3	2	Valve Bushing	77B	1	Live Air Handle Valve Plate	154	2	Stud for Valve Guide Clamp
4	1	Lower Ball Race	78B	1	Live Air Handle Adjusting Screw	158	2	Valve Guide Clamp Stud Nut
7	1	Oil Plug	79B	1	Live Air Handle Adjusting Washer	165	4	Piston Pin
8	1	Vent Tube	80	1	Live Air Handle Clamp Nut	172	1	Eccentric Driver Pin
9	1	Suspension Hook	81B	1	Live Air Handle Locking Sleeve	173	2	Center Plate Dowel Pin
12	1	Gear Case Bushing	83	1	Piston Wrench	173A	2	Center Plate Key for SS Drill
13	1	Center Plate	84	2	Crank Chamber Plate	181	14	3/8-inch Steel Balls for Ball Race
19	1	Upper Ball Race	85	12	Crank Chamber Plate Screw	188	1	Clamp Nut for Grip Handle
20	1	Right Valve	86	3	Gear Case Stud (short)	189	1	Retainer Nut for Grip Handle
21	1	Left Valve	87	12	Gear Case Stud Nut	190	1	Ejecting Pin Retainer for Grip Handle
22	4	Piston with No. 165	88	1	Socket Wrench for Gear Case and Connecting Rod Nuts	335	2	Rivet for Intermediate Gear Stud for NN Drill
22A	4	Piston, complete, with Nos. 23 and 345 (not shown on parts plate)	88A	1	Valve Lapping Rod	338	2	Rivet for Inside Connecting Rod
22B	4	Piston, complete, with Nos. 23 and 346 (not shown on parts plate)	89	1	Packing for Spindle	339	4	Connecting Rod Stud
23	4	Connecting Rod Socket Nut	90	1	Gear Case with Nos. 12, 104, 105 and 173	340	4	Connecting Rod Stud Nut
28	1	Crank Shaft	91	1	Compound Gear	343	4	Outside Connecting Rod Rivet
30	1	Eccentric and Driver	92	1	Spindle with Nos. 102 and 335 for NN Drill	344	4	Connecting Rod Cotter Pin
32	2	Eccentric Strap	92	1	Spindle with No. 102 for PP and SS Drills	345	2	Inside Connecting Rod
33	1	Right Valve Stud	93	3	Intermediate Gear for PP Drill, with Nos. 419, 420 and 421 (must be ordered complete)	346	2	Outside Connecting Rod
34	1	Left Valve Stud	95	1	Intermediate Gear for NN and SS Drills, with Nos. 419, 420 and 421 (must be ordered complete)	383	4	Roller Retainer for NN Drill (must be ordered complete, see Nos. 530 and 537)
35	2	Valve Stud Nut	96	1	Balls and Retainer	384	2	Upper Roller Retainer for SS and PP Drills (must be ordered complete, see Nos. 530 and 537)
36	2	Valve Lever	97	3	Stud Plate	48	16	Rollers for Roller Retainer for NN Drill
37	2	Valve Stud Washer	97	2	Nut for Intermediate Gear Stud for PP Drill	20	16	Rollers for Upper Roller Retainer for PP Drill
38	2	Valve Stud Guide	99	2	Nut for Intermediate Gear Stud for NN and SS Drills	16	16	Rollers for Upper Roller Retainer for SS Drill
39	2	Exhaust Cap	101	3	Lower Crank Cap	2	2	Thrust Plate for Crank Bushing for NN Drill
41	2	End Plate for Valve	102	3	Compound Pinion	385	1	Thrust Plate for Upper Bushing for SS and PP Drills
42	4	Cylinder Head	102	2	Intermediate Gear Stud for PP Drill	4	4	Rivet for Roller Retainers for NN Drill
47	1	Protection Nut	103	2	Intermediate Gear Stud for NN and SS Drills	2	2	Rivet for Upper Retainers for SS and PP Drills
48	1	Stuffing Box	104	1	Key for Compound Gear	2	2	Crank Bushings for NN Drill
50	1	Grip Handle, complete, with Nos. 188 and 189	105	1	Internal Gear	387	1	Upper Bushings for SS and PP Drills
51	1	Ejecting Pin	106	1	Key for Internal Gear			
53	1	Hose Nipple	107	1	Key for Outer Feed Sleeve			
54	1	Feed Handle	118	1	Feed Screw Center			
55	1	Set Screw for Feed Handle	119B	1	Live Air Dowel Pin Screw			
57	1	Feed Screw with Nos. 58 and 118	142	1	Reversible Live Air Handle complete			
58	1	Feed Screw Key	146	2	Gasket for Crank Chamber Plate			
59	1	Inner Feed Sleeve	148	1	Valve Guide Clamp			
60	1	Outer Feed Sleeve with No. 117						
61	1	Ejecting Pin Retainer for Feed Screw						
62	1	Nut for Feed Sleeve						
63	1	Ejecting Pin for Feed Screw						
64B	1	Live Air Handle Stem						
65C	1	Live Air Handle Sleeve						
66B	1	Live Air Handle Cap						
68B	1	Live Air Handle Valve						
69B	1	Live Air Handle Valve Stem						
70B	1	Live Air Handle Screw						
71B	1	Live Air Handle Strainer						
72B	1	Live Air Handle Operating Plug						
73	1	Dead Handle Stem						
74	1	Dead Handle Plug						

Continued on page 100

Always Give Size and Serial Number of Drill and Symbol Number of Part



Reversible Roller Bearing Compound Drills—Continued

List of Parts—Sizes NN, PP and SS

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
388	1	Upper Crank Cap	422	1	End Washer for Center Plate for SS Drill	507	1	Feed Screw, complete with Nos. 54, 55, 57, 60, 61, 62 and 63
	44	Rollers for Intermediate Gear for SS Drill	423	10	Rollers for Center Plate for SS Drill	521	1	Square Chuck with Morse Taper Shank
419	48	Rollers for Intermediate Gear for NN Drill	443	2	Lower Roller Retainer for PP Drill (must be ordered complete, see No. 537)		2	Roller Retainer, complete, with Nos. 383, 384, and 386 for NN Drill
	66	Rollers for Intermediate Gear for PP Drill	444	16	Rollers for Lower Roller Retainer for PP Drill	530	1	Upper Roller Retainer, complete, with Nos. 383, 384, and 386 for SS and PP Drills
	2	Separating Washers for Intermediate Gear for SS and NN Drills	445	1	Thrust Plate for Lower Crank Bushing for PP Drill	537	1	Lower Roller Retainer, complete, with Nos. 383, 384, and 386 for PP Drill
420	1	Separating Washers for Intermediate Gear for PP Drill	446	2	Rivet for Lower Roller Retainer for PP Drill			
	4	End Washers for Intermediate Gear for SS and NN Drills	447	1	Lower Crank Bushing for PP Drill			
421	6	End Washers for Intermediate Gear for PP Drill						



One-Piece Pneumatic Long-Stroke Riveting Hammers

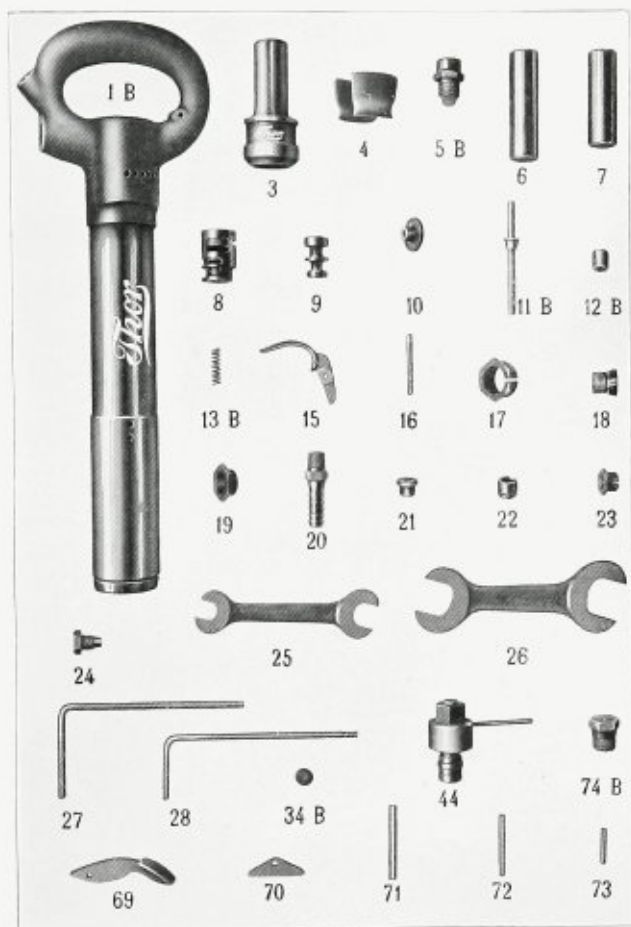
List of Parts—Nos. 60, 80, 85, 90 and 90-S

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	One-Piece Barrel and Handle	16	1	Trigger Pin (for inside trigger)
2	1	Strainer	17	1	Expander Clamp
3	1	Rivet Set, finished	18	1	Expander Sleeve
3A	1	Rivet Set, blank	19	1	Expander Nut
4	1	Rivet Set Clip	20	1	Hose Nipple
5	1	Reducer and Strainer	21	1	Auxiliary Valve
6	1	Piston, 4 inches long, for No. 90 Hammer	22	1	Auxiliary Valve Bushing
6A	1	Piston, 1½ x 4 inches for No. 90-S Hammer	23	1	Auxiliary Valve Cap
7	1	Piston, 3½ inches long, for No. 80 Hammer	24	1	Auxiliary Valve Cap Expander
7A	1	Piston, 3 inches long, for Nos. 60 and 85 Hammers	25	1	Auxiliary Valve Cap Wrench
8	1	Main Valve Bushing	44	1	Main Valve Bushing Extractor
9	1	Main Valve	58	1	Main Valve Cap Wrench
10	1	Main Valve Cap	59	1	Main Valve Extractor Rod
11	1	Throttle Valve	60	1	Auxiliary Valve Extractor Rod
12	1	Throttle Valve Bushing	69	1	Outside Trigger
13	1	Throttle Valve Spring	70	1	Throttle Valve Lever (for outside trigger)
14	1	Throttle Valve Guide (Old Style) (not on parts plate)	71	1	Valve Lever Push Pin (for outside trigger)
15	1	Trigger (inside)	72	1	Valve Lever Pin (for outside trigger)
			73	1	Outside Trigger Pin
			74	1	Throttle Valve Guide (New Style)

Always give Size and Serial Number of Tool and Symbol Number of Part

Thor

One-Piece Pneumatic Long-Stroke Riveting Hammers



Parts for Riveting Hammers Nos. 60, 80, 85, 90 and 90-S



Pneumatic Chipping, Calking and Light Riveting Hammers



Parts for Pneumatic Riveting Hammers Nos. 40 and 50, and Chipping, Calking and Beading Hammers Nos. 1, 2, 3, 4, 5 and 5-S



Pneumatic Riveting Hammers

Nos. 40 and 50

Chipping Hammers, Nos. 1, 2, 3, 4, 5 and 5-S

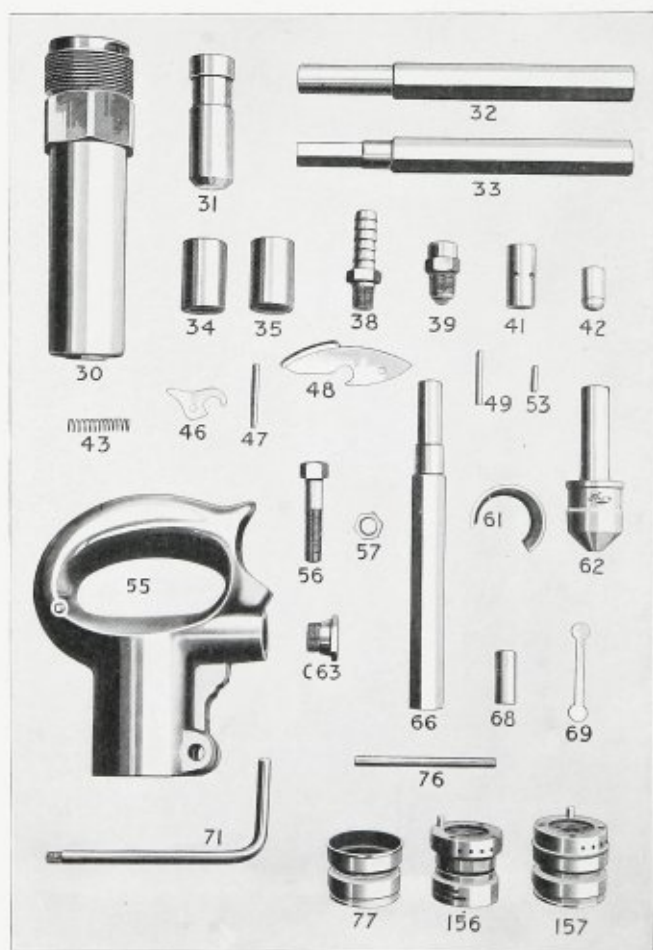
List of Parts

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
30	1	Barrel with Round or Hex. Nozzle	53	2	Main Valve Block Dowel Pin
31A	1	Piston for No. 1 Hammer	54	2	Main Valve Block Cap
31B	1	Piston for No. 2 Hammer	C55	1	Outside Trigger Handle Forging with Nos. C41 and C68
31C	1	Piston for No. 3 Hammer	C55A	1	Handle (outside trigger) complete with Nos. 39, C42, C43, C46, C47, C48, C49, C55, C56, C57, C63 and C69 (not shown on parts plate)
31D	1	Piston for Nos. 4 and 5 Hammers	C56	1	Clamp Screw
31E	1	Piston for Nos. 40 and 50 Hammers	C57	1	Clamp Screw Nut
32	1	Chisel Blank, Round Shank	61	1	Rivet Set Clip (Nos. 40 and 50 Hammers)
33	1	Chisel Blank, Hexagon Shank	62	1	Rivet Set Finished (Nos. 40 and 50 Hammers)
34	1	Nozzle, Hexagon, for Nos. 1, 2 and 3 Hammers	62A	1	Rivet Set, Blank (Nos. 40 and 50 Hammers)
34A	1	Nozzle, Hexagon, for Nos. 4 and 5 Hammers	C63	1	Throttle Valve Cap
35	1	Nozzle, Round, for Nos. 1, 2 and 3 Hammers	64	1	Throttle Valve Nut Pin (not on parts plate)
35A	1	Nozzle, Round, for Nos. 4 and 5 Hammers	65	1	Fiber Washer for Handle (not on parts plate)
38	1	Hose Nipple	66	1	Chisel Blank, Differential Shank
39	1	Reducer and Strainer	67	1	Lapping Rod for Valves
40	1	Throttle Valve Guide (not on parts plate)	C68	1	Throttle Valve Stop Washer
C41	1	Throttle Valve Bushing	C69	1	Lever and Trigger Connection
C42	1	Throttle Valve	70	1	Strainer (not on parts plate)
C43	1	Throttle Valve Spring	C71	1	Lapping Rod for Throttle Valve
44	1	Throttle Valve Stem (not on parts plate)	75	1	Inside Trigger (not on parts plate)
45	1	Throttle Valve Nut (not on parts plate)	C77	1	Handle (inside trigger) complete with Nos. 39, C42, C43, C46, C47, C49, C56, C57, C63, C75 and C78 (not on parts plate)
C46	1	Throttle Valve Lever	C78	1	Inside Trigger Handle Forging only with Nos. 41 and 68 (not on parts plate)
C47	1	Throttle Valve Lever Pin			
C48	1	Trigger			
C49	1	Trigger Pin			
50	1	Main Valve, Large			
51	1	Main Valve, Small			
52	1	Main Valve Block with Nos. 53 and 54			
52A	1	Valve Block complete, including Nos. 50, 51, 52, 53 and 54 (not shown on parts plate)			

Always Give Size and Serial Number of Hammer and Symbol Number of Part

Thor

Pneumatic Chipping, Calking and Light Riveting Hammers



Parts for Hammers Sizes A, B, C, D, E, DD and EE



Pneumatic Chipping, Calking and Light Riveting Hammers

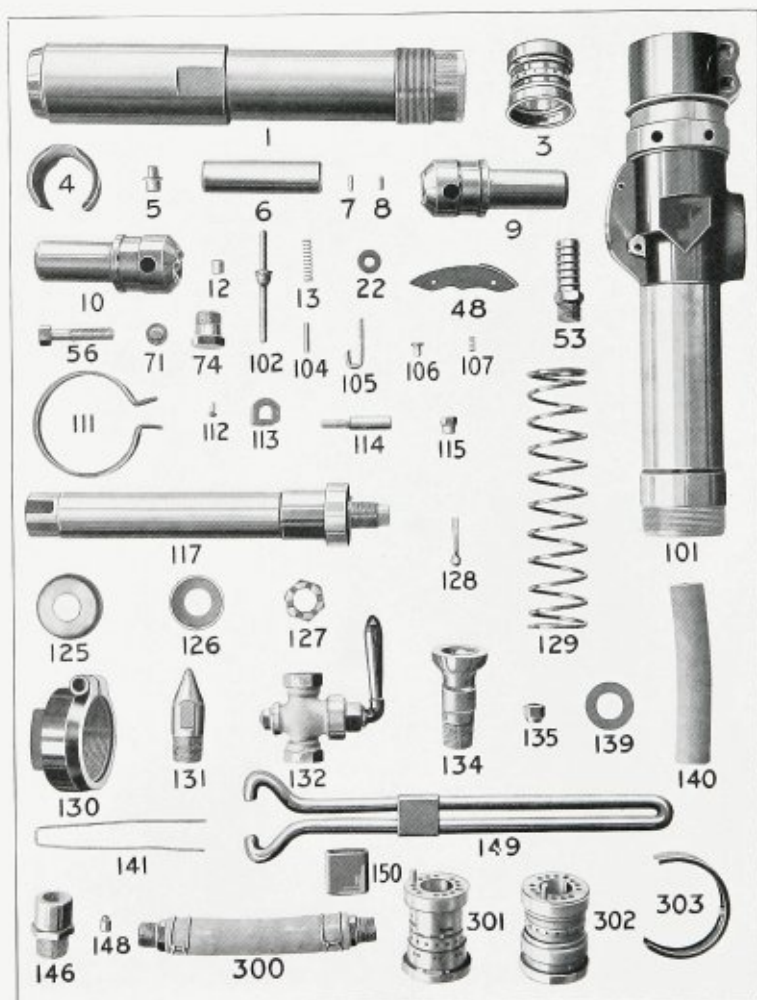
List of Parts—Sizes A, B, C, D, E, DD and EE

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
30	1	Barrel	57	1	Clamp Screw Nut
31	1	Piston	61	1	Rivet Set Clip
32	1	Chisel Blank, Round Shank	62	1	Rivet Set
33	1	Chisel Blank, Hexagon Shank	62A	1	Rivet Set Blank (not shown on parts plate)
34	1	Nozzle (Hexagon)	C63	1	Throttle Valve Cap
35	1	Nozzle (Round)	66	1	Chisel Blank, Differential Shank
38	1	Hose Nipple	68	1	Throttle Valve Stem Guide
39	1	Reducer	69	1	Lever and Trigger Connection
41	1	Throttle Valve Bushing	70	1	Strainer
42	1	Throttle Valve	71	1	Lapping Rod for Throttle Valve
43	1	Throttle Valve Spring	75	1	Inside Trigger
46	1	Throttle Valve Lever	76	1	Throttle Valve Stem
47	1	Throttle Valve Lever Pin	77	1	Valve
48	1	Trigger (outside)	78	1	Inside Trigger Handle Forging with Nos. 41 and 68 (not shown on parts plate)
49	1	Trigger Pin	78A	1	Inside Trigger Handle complete with Nos. 39, 42, 43, 49, 56, 57, C63, 68, 75 and 76 (not shown on parts plate)
53	1	Main Valve Block Dowel Pin	156	1	Valve Block, complete with No. 53
55	1	Outside Trigger Handle with Nos. 41 and 68	157	1	Valve and Block, complete with Nos. 53, 77 and 156
55A	1	Outside Trigger Handle complete with Nos. 39, 42, 43, 46, 47, 48, 49, 56, 57, C63, 68, 69 and 76 (not shown on parts plate)			
56	1	Clamp Screw			

Always Give Size and Serial Number of Hammer and Symbol Number of Part

Thor

Pneumatic Stay-Bolt Driver



Parts for No. 96 Stay-Bolt Driver



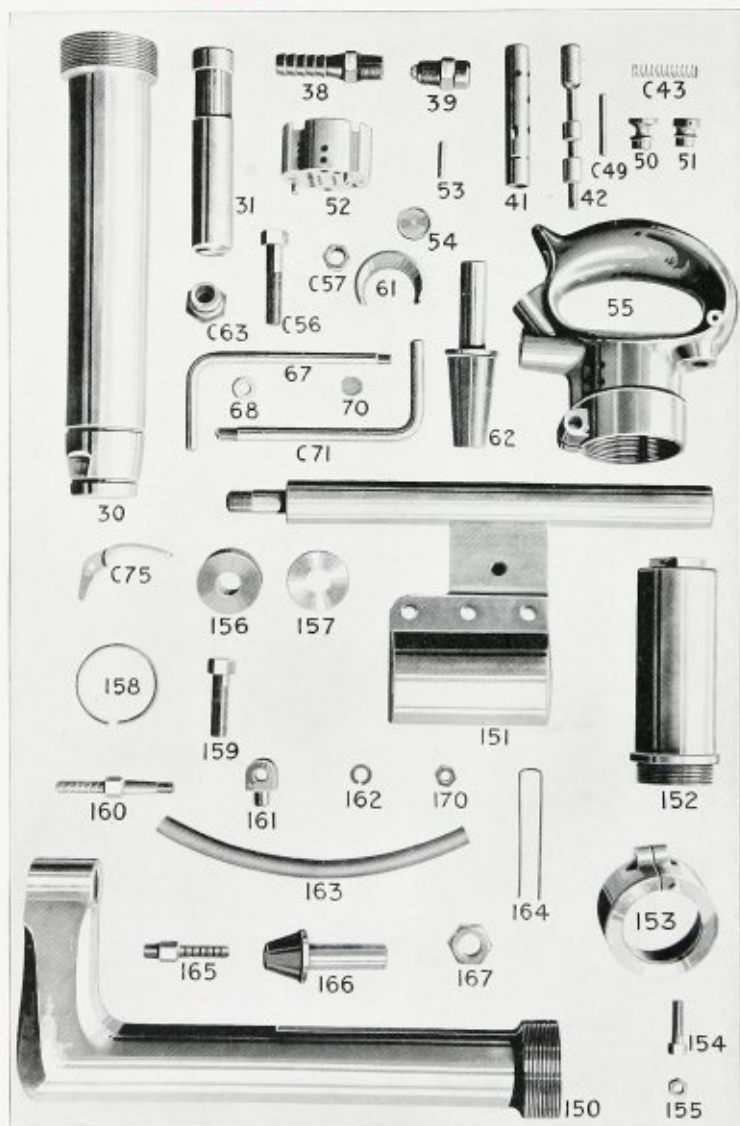
Pneumatic Stay-Bolt Driver

List of Parts—No. 96

Symbol	No. Pcs.	Description	Symbol	No. Pcs.	Description
1	1	Barrel	128	1	Cotter Pin for Plunger Cup Nut
3	1	Valve (Main)	129	1	Plunger Rod Spring
4	1	Rivet Set Clip	130	1	Holder-on Barrel Cap
5	1	Auxiliary Valve	131	1	Plunger Rod Center
6	1	Piston	132	1	Air Valve
7	1	Dowel Pin for Valve Block to Barrel	134	1	Plunger Rod Cup Center
8	1	Dowel Pin for Valve Block to Cap	135	2	Clamp Bolt Nuts
9	1	Rivet Set (Plain)	136	1	Plunger Rod Swivel Center (Old Style)
10	1	Rivet Set (with Center)	137	2	Convex Disks (Old Style)
12	1	Throttle Valve Bushing	138	1	Swivel Center Clip (Old Style)
13	1	Throttle Valve Spring	139	1	Plunger Washer (Old Style)
22	1	Auxiliary Valve Bushing	140	3	Hose
48	1	Trigger	141	2	Clamps for Hose
53	2	Hose Nipples	142	1	Clamp Handle (Old Style)
56	2	Clamp Bolts	143	2	Bolts for Clamp Handle (Old Style)
71	1	Strainer	144	2	Nuts for Clamp Handle Bolt (Old Style)
74	1	Throttle Valve Guide	145	2	Cotter Pins for Clamp Handle Bolt Nut (Old Style)
101	1	Holder-on Barrel	146	1	Reducer
102	1	Throttle Valve	148	1	Lock Pin for Exhaust Deflector
104	1	Trigger Pin	149	1	Turning Wrench complete, with 150 (New Style)
105	1	Trigger Lock	150	1	Tension Sleeve for Turning Wrench (New Style)
106	1	Trigger Lock Head	300	1	Hose Connection with 53 and 141
107	1	Trigger Lock Spring	301	1	Valve Block complete with Nos. 7 and 8
111	1	Suspension Hook	302	1	Valve and Block complete with Nos. 5, 5, 7, 8 and 22
112	1	Suspension Hook Rivet	303	1	Exhaust Deflector
113	1	Clamp Key			
114	1	Clamp Key Taper Pin			
115	1	Clamp Key Taper Pin Nut			
117	1	Plunger Rod			
125	1	Plunger Packing			
126	1	Plunger Cup			
127	1	Plunger Cup Nut			

Always Give Size and Serial Number of Tool and Symbol Number of Part

Thor Yoke Riveters



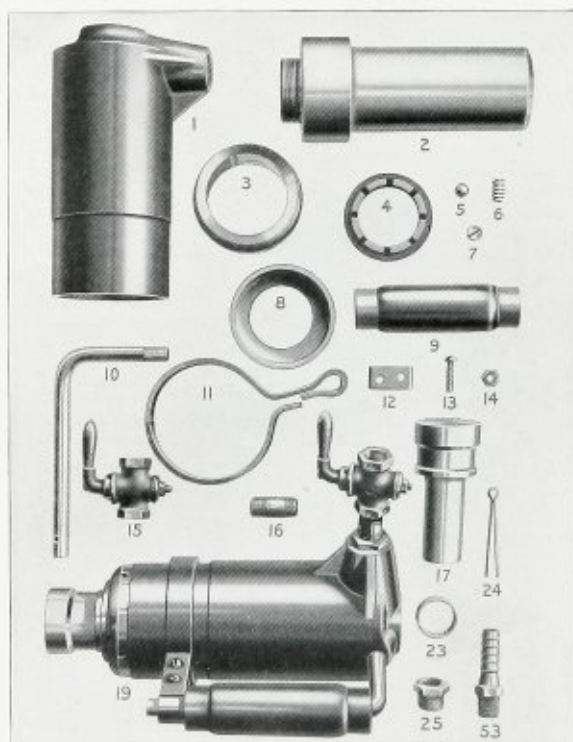
Parts for Yoke Riveter No. 4

Thor Yoke Riveters

List of Parts—No 4

Symbol	No. Pcs.	Description	Symbol	No. Pcs.	Description
30	1	Barrel	70	1	Strainer
31	1	Piston	C71	1	Lapping Rod for Throttle Valve
38	1	Hose Nipple	C75	1	Inside Trigger
39	1	Reducer and Strainer	150	1	Yoke
41	1	Throttle Valve Bushing	151	1	Piston Rod and Clamp
42	1	Throttle Valve	152	1	Cylinder (now made in one piece with No. 153)
43	1	Throttle Valve Spring	153	1	Cylinder Clamp (Old Style)
C49	1	Trigger Pin	154	1	Bolt for Cylinder Clamp
50	1	Main Valve (large)	155	1	Nut for Cylinder Clamp Bolt
51	1	Main Valve (small)	156	1	Piston Packing
52	1	Main Valve Block with Nos. 53 and 54	157	2	Piston Washer
52A	1	Main Valve Block complete, including Nos. 50, 51, 52, 53 and 54 (not on parts plate)	158	1	Barrel Stop Ring
53	2	Main Valve Block Dowel Pin	159	3	Barrel Clamp Screw
54	2	Main Valve Block Cap	160	1	Hose Nipple for Piston Rod and Clamp
55	1	Handle Forging with Nos. 41 and 68	161	1	Hose Connection
55A	1	Handle, complete including Nos. 39, 42, 43, C49, C56, C57, C63, C75 and 55 (not on parts plate)	162	1	Spring Washer
C56	1	Clamp Screw for Handle	163	1	Hose
C57	1	Nut for Clamp Screw and Barrel Clamp Bolt	164	2	Clamp for Hose
61	1	Rivet Set Clip	165	1	Hose Nipple for Handle
62	1	Rivet Set, finished	166	1	Holder-on Set
62A	1	Rivet Set, blank	167	1	Nut for Piston
C63	1	Throttle Valve Cap	170	1	Nut for Hose Nipple (not on parts plate)
67	1	Lapping Rod for Valve	173	1	Yoke Key (not shown on parts plate)
68	1	Throttle Valve Stop Washer	174	1	Cotter Pin for Piston Nut (not shown on parts plate)

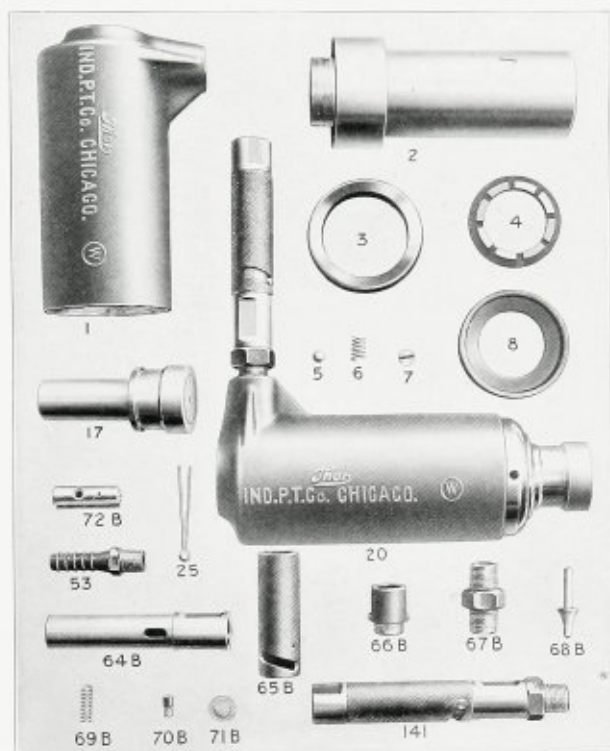
Always Give Size and Serial Number of Tool and Symbol Number of Part

Thor No. 1 Pneumatic Holder-On

List of Parts

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder	11	1	Handle Strap
2	1	Plunger	12	1	Handle Strap Clamp
3	1	Plunger Stop Nut	13	2	Handle Strap Clamp Screws
4	1	Packing Nut	14	2	Handle Strap Clamp Nuts
5	1	Rivet Set Retaining Ball, $\frac{3}{8}$ inch diameter	15	1	Stop Valve
6	1	Rivet Set Retaining Spring	16	1	Stop Valve Nipple
7	1	Rivet Set Retaining Plug	17	1	Rivet Set Blank
8	1	Packing (Leather)	23	2	Ferrules for Wood Handle
9	1	Handle (Wood)	24	1	Cotter Pin for Packing Nut
10	1	Handle Support	25	1	Reducer
			53	1	Hose Nipple

Always Give Size and Serial Number of Tool and Symbol Number of Part

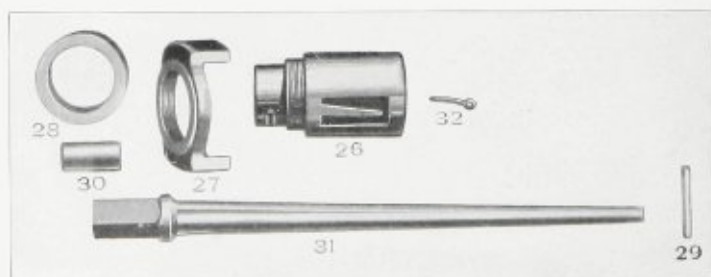
Thor No. 2 Pneumatic Holder-On

List of Parts

Sym- bol	No. Pcs.	Description	Sym- bol	No. Pcs.	Description
1	1	Cylinder	64B	1	Live Air Handle Stem
2	1	Plunger	65B	1	Live Air Handle Sleeve
3	1	Plunger Stop Nut	66B	1	Live Air Handle Cap
4	1	Packing Nut	67B	1	Live Air Handle Plug
5	1	Rivet Set Retaining Ball, $\frac{3}{8}$ inch diameter	68B	1	Live Air Handle Valve
6	1	Rivet Set Retaining Spring	69B	1	Live Air Handle Valve Spring
7	1	Rivet Set Retaining Plug	70B	1	Live Air Handle Strainer
8	1	Packing (Leather)	71B	1	Live Air Handle Valve Lift
17	1	Rivet Set Blank	72B	1	Live Air Handle Valve Lift
48	1	Pipe Plug (Not shown on parts plate)	141	1	Non-Reversible Live Air Handle complete
53	1	Hose Nipple	145	1	Live Air Handle Valve Guide
			25	1	Cotter Pin for Packing Nut

Always Give Size and Serial Number of Tool and Symbol Number of Part

Thor Special Lever Throttles



Parts for Flue Rollers



Special Lever Throttles

List of Parts

Non-Reversible Drills

Nos. 0, 1, 2 and 4

Reversible Drills

Nos. 00, 21 and 22

Sym- bol	No. Pcs.	Description
64B	1	Live Air Handle Stem
66B	1	Live Air Handle Cap
67B	1	Live Air Handle Plug
68B	1	Live Air Handle Valve
69B	1	Live Air Handle Valve Spring
71B	1	Live Air Handle Strainer
72B	1	Live Air Handle Valve Lift
143	1	Live Air Handle Lever Throttle, complete (non-reversible)
145	1	Live Air Handle Valve Guide
289	1	Throttle Lever
290	1	Throttle Lever Screw
291	2	Throttle Lever Bushings
292	1	Throttle Lever Sleeve
293	2	Throttle Lever Rivets
531	1	Throttle Lever and Sleeve, complete, (non-reversible)

Sym- bol	No. Pcs.	Description
66B	1	Live Air Handle Cap
68	1	Live Air Handle Valve
69B	1	Live Air Handle Valve Spring
71B	1	Live Air Handle Strainer
75B	2	Live Air Handle Valve Plate Screws
77B	1	Live Air Handle Plate
78B	1	Live Air Handle Adjusting Screw
79B	1	Live Air Handle Adjusting Washer
80	1	Live Air Handle Clamp Nut
119B	1	Live Air Handle Dowel Pin Screw
144	1	Live Air Handle Lever Throttle, complete (reversible)
145	1	Live Air Handle Valve Guide
150	1	Copper Gasket for Live Air Handle Plate
289	1	Throttle Lever
290	1	Throttle Lever Screw
291	1	Throttle Lever Bushing
292	1	Throttle Lever Sleeve
293	2	Throttle Lever Rivets
390	1	Live Air Handle Stem for Reversible Lever Throttle
391	1	Live Air Handle Valve, complete, for Reversible Lever
392	1	Live Air Handle Valve for Lever Throttle
393	1	Live Air Handle Lift
394	1	Poppet Valve Seat
532	1	Throttle Lever and Sleeve, complete (reversible)

Always Give Size and Serial Number of Drill and Symbol Number of Part

List of Parts

Pneumatic Flue Rollers or Expanders

Sym- bol	No. Pcs.	Description
26	1	Body
27	1	Stop Collar
28	1	Stop Collar Ring
29	1	Taper Pin

Sym- bol	No. Pcs.	Description
30	3	Rollers, each
31	1	Expander Mandrel
32	1	Cotter for Expander Mandrel



Piston Air Drills

Weights and Dimensions—Packed for Export

Size No.	Description	Size of Box for One Inches	Gross W'ght Lbs.	Net W'ght Lbs.
0	Non-Reversible	20 x 16 x 12	94	80
1	Non-Reversible	16 x 14 x 11	66	55
2	Non-Reversible	14 $\frac{1}{2}$ x 11 $\frac{1}{2}$ x 10	57	48
3	Non-Reversible	16 $\frac{1}{2}$ x 8 x 8	21	16
4	Non-Reversible	13 $\frac{3}{4}$ x 10 $\frac{1}{2}$ x 8	30	24
5	Reversible Wood Boring	13 $\frac{3}{4}$ x 10 $\frac{1}{2}$ x 8	30	24
6	Reversible Wood Boring	16 $\frac{1}{2}$ x 8 x 8	19	14
7	Grinder	13 $\frac{3}{4}$ x 10 $\frac{1}{2}$ x 8	32	26
8	Close-Corner	19 $\frac{1}{4}$ x 9 $\frac{3}{4}$ x 6	43	35
9	Close-Corner	19 $\frac{1}{4}$ x 9 $\frac{3}{4}$ x 6	46	38
10	Non-Reversible	16 $\frac{1}{2}$ x 8 x 8	19	14
14	Reversible Wood Boring	14 $\frac{1}{2}$ x 11 $\frac{1}{2}$ x 10	46	37
00	Reversible	20 x 16 x 12	97	83
20	Reversible Compound	13 $\frac{1}{2}$ x 10 x 9	35	26
21	Reversible	16 x 14 x 11	68	57
22	Reversible	14 $\frac{1}{2}$ x 11 $\frac{1}{2}$ x 10	59	50
23	Non-Reversible	16 $\frac{1}{2}$ x 8 x 8	21	16
24	Non-Reversible Compound	16 x 14 x 11	80	69
25	Reversible Compound	16 x 14 x 11	82	71
26	Non-Reversible Compound	16 x 11 $\frac{1}{2}$ x 9 $\frac{1}{2}$	53	41
27	Reversible Compound	16 x 11 $\frac{1}{2}$ x 9 $\frac{1}{2}$	54	42
A	Non-Reversible Roller Bearing	20 x 16 x 12	94	80
B	Non-Reversible Roller Bearing	16 x 14 x 11	66	55
C	Non-Reversible Roller Bearing	14 $\frac{1}{2}$ x 11 $\frac{1}{2}$ x 10	57	48
D	Non-Reversible Roller Bearing	13 $\frac{3}{4}$ x 10 $\frac{1}{2}$ x 8	30	24
E	Non-Reversible Roller Bearing	16 $\frac{1}{2}$ x 8 x 8	21	16
F	Non-Reversible Roller Bearing	16 $\frac{1}{2}$ x 8 x 8	21	16
G	Non-Reversible Roller Bearing	16 $\frac{1}{2}$ x 8 x 8	20	13
H	Grinder, Roller Bearing	13 $\frac{3}{4}$ x 10 $\frac{1}{2}$ x 8	32	26
N	Non-Rev. Comp. Roller Bearing	16 x 14 x 11	80	69
P	Non-Rev. Comp. Roller Bearing	16 x 11 $\frac{1}{2}$ x 9 $\frac{1}{2}$	53	41
AA	Reversible Roller Bearing	20 x 16 x 12	97	83
BB	Reversible Roller Bearing	16 x 14 x 11	68	57
CC	Reversible Roller Bearing	14 $\frac{1}{2}$ x 11 $\frac{1}{2}$ x 10	59	50
AW	Rev. Wood Bor. Roller Bearing	14 $\frac{1}{2}$ x 11 $\frac{1}{2}$ x 10	46	37
BW	Rev. Wood Bor. Roller Bearing	13 $\frac{3}{4}$ x 10 $\frac{1}{2}$ x 8	30	24
CW	Rev. Wood Bor. Roller Bearing	16 $\frac{1}{2}$ x 8 x 8	19	14
NN	Rev. Compound Roller Bearing	16 x 14 x 11	82	71
PP	Rev. Compound Roller Bearing	16 x 11 $\frac{1}{2}$ x 9 $\frac{1}{2}$	54	42
SS	Rev. Compound Roller Bearing	13 $\frac{1}{2}$ x 10 x 9	35	26

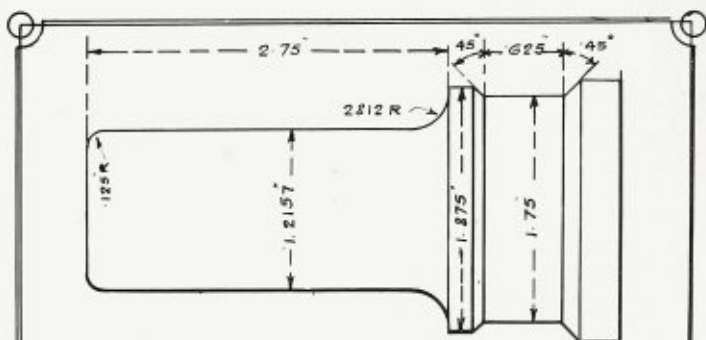


Pneumatic Hammers and Appliances

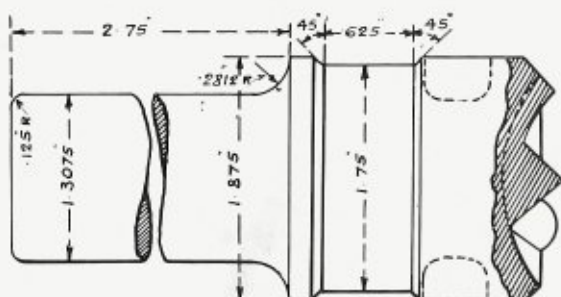
Weights and Dimensions—Packed for Export

Size No.	Description	Size of Box for One Inches	Gross W'ght Lbs.	Net W'ght Lbs.
HAMMERS				
1	Chipping and Calking	19 X 8 X 6	16	13
2	Chipping and Calking	19 X 8 X 6	17	14
3	Chipping and Calking	19 X 8 X 6	21	17
4	Chipping and Calking	19 X 8 X 6	23	18
5	Heavy Chipping	19 X 8 X 6	24	19
5-S	Extra Heavy Chipping	19 X 8 X 6	24	19
40	Light Riveting	19 X 8 X 6	23	18
50	Light Riveting	19 X 8 X 6	24	19
60	Long-Stroke Riveter	19 X 8 X 6	36	31
80	Long-Stroke Riveter	24 X 9 X 6	37	32
85	Long-Stroke Riveter	24 X 9 X 6	37	32
90	Long-Stroke Riveter	24 X 9 X 6	38	33
90-S	Long-Stroke Riveter	24 X 9 X 6	38	33
A	Chipping and Calking	19 X 8 X 6	16	13
B	Chipping and Calking	19 X 8 X 6	17	14
C	Chipping and Calking	19 X 8 X 6	21	17
D	Chipping and Calking	19 X 8 X 6	23	18
E	Heavy Chipping	24 X 9 X 6	24	19
DD	Light Riveting	19 X 8 X 6	23	18
EE	Light Riveting	19 X 8 X 6	24	19
		[Pair]		
96	STAY-BOLT DRIVER	39 X 11 X 10	142	86
4	COMBINATION RIVETER	10 X 10 X 25	60	40
1 & 2	HOLDER-ON	10 X 12 X 8	26	20
	PNEUMATIC RIVET FORGE	42 X 21 X 21	95	60
FLUE ROLLERS OR EXPANDERS				
	1 $\frac{3}{4}$ inch	14 X 7 $\frac{1}{2}$ X 5	6 $\frac{1}{2}$	3 $\frac{1}{2}$
	1 $\frac{7}{8}$ inch	14 X 7 $\frac{1}{2}$ X 5	6 $\frac{3}{4}$	3 $\frac{3}{4}$
	2 inch	14 X 7 $\frac{1}{2}$ X 5	7	4
	2 $\frac{1}{8}$ inch	14 X 7 $\frac{1}{2}$ X 5	7 $\frac{1}{2}$	4 $\frac{1}{2}$
	2 $\frac{1}{4}$ inch	14 X 7 $\frac{1}{2}$ X 5	7 $\frac{3}{4}$	4 $\frac{3}{4}$
	2 $\frac{1}{2}$ inch	14 X 7 $\frac{1}{2}$ X 5	9	6
	2 $\frac{3}{4}$ inch	14 X 7 $\frac{1}{2}$ X 5	10	7
	3 inch	14 X 7 $\frac{1}{2}$ X 5	11	8
	3 $\frac{1}{2}$ inch	14 X 7 $\frac{1}{2}$ X 5	11 $\frac{1}{2}$	9
	4 inch	14 X 7 $\frac{1}{2}$ X 5	12	10
HOSE				
	1 $\frac{1}{2}$ inch Plain (100 Ft.)	30 X 30 X 10	80	42
	3 $\frac{1}{4}$ inch Plain (100 Ft.)	30 X 30 X 10	100	62
	1 $\frac{1}{2}$ inch Wire wound (100 Ft.)	30 X 30 X 10	70	35
	3 $\frac{1}{4}$ inch Wire wound (100 Ft.)	30 X 30 X 10	90	52

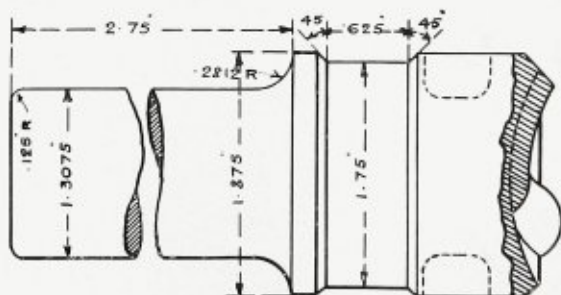
Thor Rivet and Stay-Bolt Sets



RIVET SET SHANK FOR LONG STROKE RIVETING HAMMER

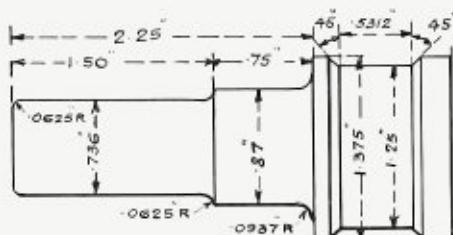


RIVET SET WITH CENTER FOR STAY BOLT DRIVER

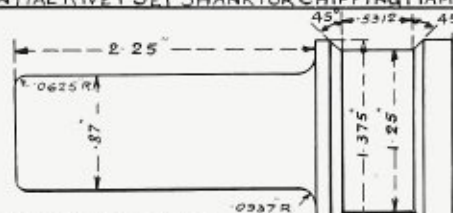


RIVET SET PLAIN FOR STAY BOLT DRIVER

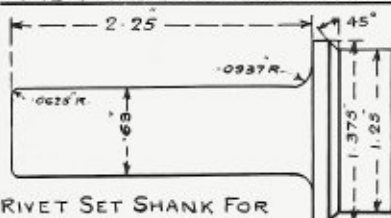
Thor Rivet Sets



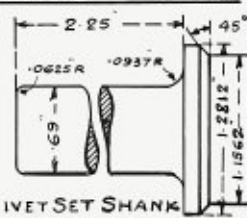
DIFFERENTIAL RIVET SET SHANK FOR CHIPPING HAMMER #40.50



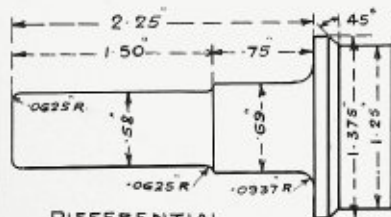
RIVET SET SHANK FOR
YOKE RIVETER #4 AND CHIPPING HAMMER #40.50



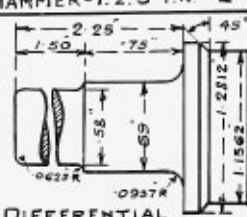
RIVET SET SHANK FOR
CHIPPING HAMMER #4.5



RIVET SET SHANK
FOR YOKE RIVETER & CHIPPING
HAMMER #1.2.3 Y.R. #2

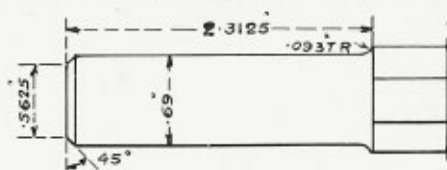


DIFFERENTIAL
RIVET SET SHANK FOR
CHIPPING HAMMER #4.5

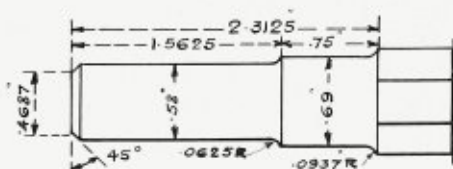


DIFFERENTIAL
RIVET SET SHANK FOR
CHIPPING HAMMER #1.2.3

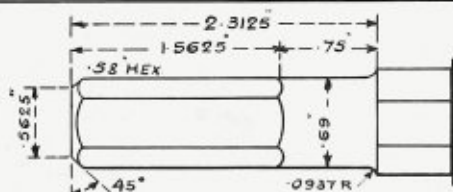
Thor Chisels for Chipping, Calking and Beading Hammers



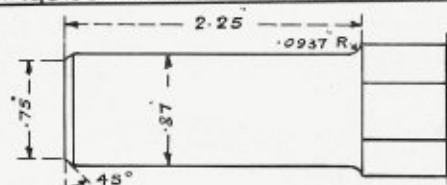
ROUND CHISEL SHANK FOR HAMMER. # 1, 2, 3, 4, 5.



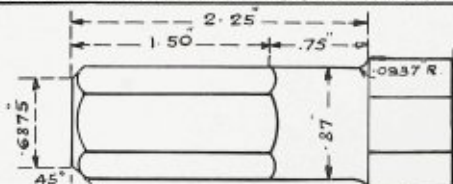
DIFFERENTIAL CHISEL SHANK FOR HAMMER. # 1, 2, 3, 4, 5.



HEXAGON CHISEL SHANK FOR HAMMER # 1, 2, 3, 4, 5.



ROUND CHISEL SHANK FOR HAMMER. # 5-S.



HEXAGON CHISEL SHANK FOR HAMMER # 5-S.

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Thor